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## ORIGINAL ARTICLES.

### PRACTICAL ANESTHESIA.

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It is generally admitted that deaths from chloroform are not infrequent. When it is considered that anesthetics are frequently given by inexperienced persons, and that patients are frequently improperly prepared and improper methods are employed to administer these agents, it is hardly surprising that fatalities occur. It is well known that complications, much less fatalities, rarely occur with experienced anesthetists. It is usually only the beginner who so frequently finds occasion to use the tongue-forceps and treat complications which do not really exist. Much has been written about deaths from chloroform. Little attention, however, is given by the average hospital junior or occasional administrator to the elimination of the evil effects of anesthetics, for no one will deny that proper narcosis will hasten rather than delay, as it usually does, convalescence from surgical operations. By a proper narcosis I mean a proper preparation of the patient and the administration of the anesthetic safely and skilfully. I therefore maintain that an ideal anesthesia should not only have for its object immunity from death, but that it should be so conducted that upon the patient's return to consciousness, it should be marked to the slightest degree by the knowledge that he has undergone narcosis.

We frequently hear of the advantages of chloroform over ether, and *vice versa*, usually by those who are accustomed to give the one agent only. No one is capable of judging the relative effects of the various anesthetics unless he has used each in a sufficient number of cases to become thoroughly familiar with them. While the future may disclose an agent for general anesthesia which will obviate the objections to ether and chloroform, we are at present limited to these two agents for the production of general anesthesia. One who has administered anesthetics to any extent is aware that there are certain types of cases in which the choice of the anesthetic and the method of anesthetization must be adapted to each individual case.

*Proper Preparation of the Patient.*—From one to four days preceding narcosis the patient should receive an active cathartic, as the mild mercuric

chlorid or compound cathartic pill, in either case followed by a mild saline, my own preference being magnesium sulphate. He should be encouraged to drink as much water as possible, best accomplished by ordering a glassful at regular intervals during the day. If suffering from prolonged illness, and if hemorrhage or shock may be expected, he should receive once daily an infusion of normal saline solution, preferably introduced into the colon through the canalized Wales' bougie. The quantity should consist of about two quarts, and should be given about the middle of the day in the recumbent position, in which the patient should remain until it is retained. It is remarkable how much good can be accomplished by this simple procedure, as an uneventful narcosis and rapid convalescence may always be expected to follow it.

Preliminary preparation in emergency cases must, of course, be adapted to the exigencies of each case. If food has recently been taken, gastric lavage should always be employed, washing until all food particles have been removed. Patients who are not directly under the observation of the surgeon should be instructed not to take any food for at least five hours preceding narcosis, and this food should be of a variety easily digestible. It may be said that failure to observe these principles has frequently caused loss of life. The following case may be cited as mentioned to me by an anesthetist: A patient presented himself at a clinic in this city for operation, and with the surgeon's knowledge and consent was etherized. Shortly thereafter he vomited food, and ceased breathing in spite of all efforts of the surgeon and his assistants to resuscitate him.

Thorough examination of the patient should never be omitted. The condition of the heart, arteries, lungs, and the urine need especial attention. The last is particularly important when open inhalers are used and little effort is made to reduce the quantity of the anesthetic to a minimum. I have frequently given ether in marked cardiac and renal disease without any deleterious effects following. I have never seen nephritis aggravated by the proper administration of ether. One case of acute exudative nephritis seemed to be benefited, for the day following narcosis casts and albumin, which were abundant before anesthesia, almost entirely disappeared. That nephritis can be produced or aggravated by the injudicious administration of ether by open inhalers.

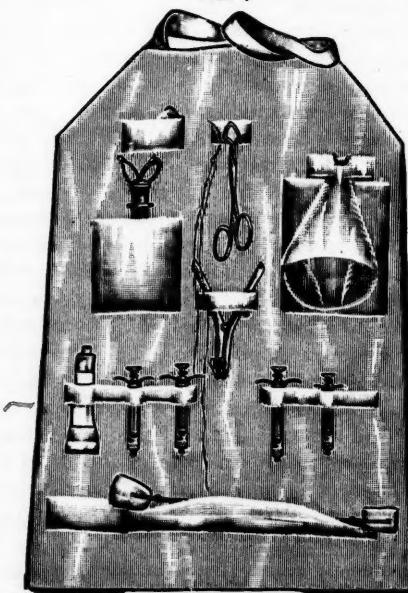
and supersaturation, I do not doubt, and I think may be a factor in its production, as well as of pneumonia following etherization. Transitory albuminuria and glycosuria I have observed following both ether and chloroform. They occur, however, so infrequently following a proper anesthesia that they need not be considered as possible complications. My custom has always been to examine the urine once, if possible, twice, preceding narcosis at each time that of the first voiding in the morning. I have also examined the urine two successive days following narcosis, and finally from one month to six weeks. These observations form the basis of an article in preparation, which will be presented shortly.

If it is necessary, hot concentrated broths of any kind may be permitted two or three hours preceding narcosis. It is advisable to have patients remain in bed for twenty-four hours preceding narcosis. False teeth should be removed, the patient should have on a woolen undervest and a night-robe, opening entirely down the front. The temperature of the room wherein the operation is to take place should be from  $80^{\circ}$  to  $85^{\circ}$  F., as should also that of the patient's room. Particular care should be observed in transporting the patient after narcosis. If this becomes necessary, he should be completely covered with woolen blankets, thereby preventing sudden chilling of the skin. The bed should have been previously warmed with hot-water containers, which may be placed about the patient, special care being observed that they be properly protected, as serious burns have been known to occur from negligence in this respect. The decubitus of the patient should be preferably the dorsal one, or, if necessary, the Sims' position. The head should be slightly extended and on a direct level with the body. This has a tendency to prevent falling back of the tongue, and facilitates the removal of saliva, which occasionally is troublesome.

It is the custom of certain operators to precede narcosis with the hypodermic use of morphin and atropin, sometimes, in addition, whisky. The advantages claimed for this practice are that less of the anesthetic is required, the patient succumbs to its influence more rapidly, it tends to prevent cardiac and respiratory failure, and deepens narcosis. I have carefully observed many patients who were subjected to this practice; others who were not, and who underwent the most serious and delicate surgical operations that any patient is called upon to submit to. My observations have been that these so-called prophylactics are, in reality, positively harmful. The practice in no way reduces the quantity of the anesthetic required. Properly admin-

istered the agent can always be reduced to an exceedingly small quantity; that the patients succumb to the influence of the anesthetic sooner is not true. Patients can be anesthetized as rapidly without morphin as with it, and frequently more so; that this practice reduces danger of cardiac and respiratory failure I do not believe. I have seen accidents occur when morphin was employed which did not occur without its use. Further, morphin is a direct respiratory depressant, and, if for no other reason, this should contraindicate its use; that it deepens narcosis is too true; this is always undesirable, for the degree of narcosis should be such as to be readily controlled by the anesthetist. There is frequently a prolonged nausea and vomiting to be attributed to

FIG. 1.



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Author's apron.

the morphin rather than to the anesthetic. Patients subjected to prolonged and painful operations in certain cases are, however, benefited by a hypodermic injection of morphin, combined with atropin, upon complete return to consciousness. This is, however, to be decided by the surgeon, the element of anesthesia not to be considered.

Before beginning the narcosis the anesthetist should be fully prepared with instruments, stimulants, etc., to combat any emergency which may possibly arise. For this purpose I have devised the apron here shown. It is arranged with pockets or compartments for holding the mouth-gag, tongue-forceps, sponge-holders, chloroform or ether bottle

containing a known quantity, hypodermic syringes, and needles. These are filled to the required amount with strychnin, nitroglycerin, atropin, to be used only as mentioned after operation, morphin, and digitalin (Duquesnal). The needles are not fastened to syringes, but are kept in a separate compartment and adjusted when necessary, this requiring but a moment. It will be seen these things are attached to the anesthetist, and can be immediately used when occasion demands. They are also unlikely to become broken from any cause. I desire to say that, while I always have these things with me, it is exceedingly rare that I find it necessary to use them. But not knowing in any individual case what complications may arise, no one who administers an anesthetic should fail to be provided with them. To do so is to invite disaster. The best way to treat complications is to prevent them. If strict attention is given to the narcosis complications will rarely occur. I may repeat that only the inexperienced so frequently meet dangerous symptoms, although they will occasionally occur in the hands of the expert.

*Ether Inhalers.*—These may be conveniently classified as open and closed. The first variety is made to allow a free ingress of air; the others so arranged that to the distal end is attached a rubber bag into which the patient exhales, and, to a certain extent, rebreathes the air (which is practically carbon dioxide).

The Allis and Sims inhalers are the most largely used of the open variety. Ormsby's modification of Clover's inhaler, as a closed inhaler, is that most frequently used in New York and vicinity. It may not be amiss here to mention the towel-and-paper inhaler. This consists of several layers of paper to give it consistency, with a towel externally, the whole folded to make a cone, into which the towel ends are packed, or in addition, gauze, sponge, or absorbent cotton is introduced upon which the ether is poured. This is, in reality, a closed inhaler, but is usually not so considered. The interior is so small that there is not sufficient space for the air in an ordinary respiration. Into this the patient exhales. The ether is immediately volatilized and expelled around the edges of the cone before the patient inhales again. This is forced upon the patient's face, and he is practically first asphyxiated, then anesthetized. Those who decry closed inhalers are usually the greatest advocates of this cone, whose one advantage is its cleanliness. The Allis and Sims inhalers are too well known to need description; they unnecessarily waste the ether and require considerable time to anesthetize the patient. The flannel used in the Allis inhaler is rarely changed after each narcosis. The Sims inhaler is easily broken, clumsy,

and poorly adjusted. The Ormsby inhaler consists of a central, elliptical, metal part, to which is attached a rubber-bag. There is a pneumatic mouth-piece and a wire-basket for a sponge or a horse-shoe-shaped piece of metal perforated with holes, through which ether is poured upon a sponge. There is usually a contrivance upon the outer side of the metal piece for introducing air or replenishing ether without removing the inhaler from the patient's face. This inhaler, while efficient, is expensive, and not easily cleansed; it is poorly adjusted, and the ether and air contrivances are unnecessary.

To obviate these several defects, I have devised the inhaler here shown. It consists of a longer central cylinder and a shorter one telescoping into its distal end. Both are flanged. To the proximal or mouth-end is attached a solid, non-pneumatic rubber face-piece with rolled edges. A very thin rub-

FIG. 2.



The author's ether-cone adjusted ready for use.

ber bag of fullest respiratory capacity is attached to the smaller cylinder; a metallic basket for gauze, inserted into any part of the cylinder, completes the inhaler. Its advantages are its evident simplicity, each part being removable, and thus rendered easily aseptic. The parts may be replaced at small expense. It is easily handled, economical, reducing the quantity of ether to from two-thirds to three-fourths of that usually used with open inhalers. One can anesthetize the patient in one-third the time usually required by the Allis or Sims inhaler. There are no ether or air-replenishing valves to get out of order; when it becomes necessary to introduce more ether or air the inhaler is simply removed. Only gauze is used, freshly replenished for each case. Lastly, it can be employed also as an open inhaler if desired, for chloroform, by removing the rubber bag from the small cylinder, attaching the mouth-piece, and covering the open end of the inhaler with three or

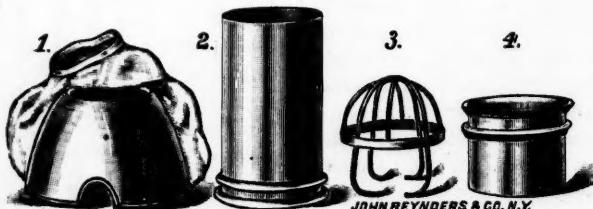
four layers of gauze, upon which the anesthetic is dropped. While I have used all the inhalers mentioned, I am convinced the closed variety is the inhaler *par excellence*. The patient by breathing into the inhaler inflates the bag, volatilizes the ether, which mixes with and is warmed by the exhaled air before being reinhaled. This inhaled air is ether and carbon dioxid, the last always essential for ideal etherization.

It may be said that certain large and plethoric patients, and especially those addicted to the use of alcohol, will not always tolerate carbon dioxid. Their condition is such that the elimination of carbon dioxid is not normal, and the blood quickly becomes surcharged. In these instances the removal of the bag and the small cylinder is desirable. For a chloroform inhaler the mask of Esmarch is most largely used in this country, but the small cylinder just described may be employed.

For operations about the mouth, pharynx, posterior nares, etc., in which preliminary tracheotomy becomes necessary, the following apparatus can be extemporized: To the distal end of two or three

saturated with chloroform and the patient encouraged to breathe deeply; that they show signs of collapse is hardly to be wondered at. By dropping the chloroform just as the patient inspires will greatly reduce the quantity required. I have frequently successfully maintained chloroform narcosis in adults for two hours with 6 drams, and this without the so-called prophylactics. As soon as anesthesia is complete, the mask should be removed, permitting the patient to breathe the air. A little practice will teach one when to reapply the mask. The time to establish a complete chloroform narcosis in adults should never be less than five minutes. This was Snow's average time for chloroformization. To anesthetize in less time than this would necessitate concentration of the vapor with its attendant dangers. During the whole narcosis strict attention should be given to variations in the respiration, pulse, skin, pupil, eye-lids, lips, etc. Complete anesthesia is usually indicated by deep, rhythmical respiration, absence of corneal or conjunctival reflex, muscular relaxation, and insensibility to pain. It should be remembered that some patients will be completely an-

FIG. 3.



The author's ether-cone separated for cleansing.

feet of medium-sized rubber-tubing is attached a glass funnel of a capacity of about eight ounces. This is covered with about four layers of a fine-meshed gauze, brought over and tied to the stem of the funnel. The end for insertion into the trachea is wrapped with gauze, covered with protective tissue. Chloroform is dropped on the taut gauze-covered funnel, the narcosis in every other way being conducted as if inhaled by mouth.

*Inhalation of Chloroform.*—Vaseline should be applied to that portion of the patient's face immediately covered by the mask. It should be carefully understood, no matter which cone is used, that chloroform vapor should never exceed four per cent. of the air inhaled. (Snow.) This is best assured by giving the agent gradually, drop by drop, on several layers of gauze, through which air readily moves. Under no circumstances should the mask ever be saturated with chloroform. That so many deaths occur from chloroform is explainable largely by overdosage by this improper method. I have frequently seen the mask

esthetized and the corneal reflex still persist. It is rarely necessary to push the anesthetic to the production of stertor in order to abolish this reflex. Relaxation of the eyelids during narcosis will usually obviate touching the conjunctiva. If this becomes necessary, gently pulling open the upper eyelid and touching its inner margin with the tip of finger will answer. In children the corneal reflex is quickly abolished. Here substitution of the palmar reflex will answer, or close attention to the respiration will always indicate complete anesthesia.

Variations in the pupil should always be noted. During primary anesthesia the pupil dilates. This always occurs also in very profound narcosis, which should always call for the removal of the anesthetic. In order to test the degree of narcosis where the pupil is dilated, a fresh supply of ether should be poured into the cone and applied to the patient's face. Efforts at swallowing, inhibition of inspiration, tonic contraction of the muscles of the lower jaw, grating of the teeth, all indicate imperfect an-

esthesia. When these symptoms do not arise too profound a narcosis is indicated. To continue the anesthetic would subject the patient to the risk of sudden death. The pupil during complete anesthesia should never be more than moderately dilated, and should always respond to light. Variations in respiration can be observed by watching the movements of the thorax or feeling the expired air against the anesthetist's tympanum or the dorsum of his fingers. Spasmodic movements of the chest indicate that respiration is being improperly performed, for very little air may be actually entering the lungs. When this condition exists with shallow, rapid, and high-pitched respiration, obstruction should be sought for and removed. The condition in the skin and mucous membranes should always be, at least, what it was when anesthesia was begun, the patient being faintly flushed. Sudden pallor or lividity call for immediate removal of the anesthetic. The skin should always be moist. Pulse variations are of greatest import. Increased rapidity of the pulse, if regular and of good quality, does not call for the removal of the narcotic. An irregular and feeble pulse, however, indicates its instant withdrawal. Efforts at vomiting, coughing, and articulation show an improper narcosis, and call for a continuance of the anesthetic.

Chloroform is preferable to ether when, for any reason, the latter does not act well. The change to chloroform will be found desirable and satisfactory. Conditions of the urine, indicating nephritis, acute or chronic, as well as acute pulmonary affections demand chloroform rather than supersaturation with ether by open inhalers. In alcoholics it is frequently desirable to begin the narcosis with chloroform and continue with ether after the patient is anesthetized. This may also be desirable in the excessively nervous and hysterical, the fumes of chloroform being, as a rule, more pleasant to inhale than ether. In obstetrics when it is usually not necessary to carry the narcosis beyond the second degree, chloroform should be used, but in acute hemorrhage, as in placenta previa, it should not be employed, ether being preferable. In operations about the face, necessitating the use of the cautery, ether being very inflammable, chloroform should be chosen. It is true that if ether is administered with closed inhalers, care being taken that the ether bottle is closed, this objection to ether can be overcome, as can also its use by night. In arterial disease, where for any reason increased arterial tension is undesirable, chloroform will usually be found preferable to ether, as ether is a direct cardiac and vasomotor stimulant and increases liability to rupture. Chloroform is extremely irritating when its fumes are subjected to

decomposition by the action of any open flame which occurs in its use at night. Chloroform has certain advantages in military practice, it being less bulky, cheaper, and economical when the quantity used is considered. Its higher boiling-point also makes it preferable for use in tropical countries.

The administration of ether, modified by chloroform or nitrous oxid, as before observed, may be preceded by chloroform until the patient is anesthetized, the narcosis thereafter being maintained with ether; or if preferable, nitrous oxid may be used primarily, to be followed by ether. It may not be amiss here to say that the reasons for using nitrous oxid are to eliminate the unpleasant symptoms frequently produced during the primary stage of etherization. I might repeat, if ether is properly administered these unpleasant symptoms will be the exception rather than the rule. Improper methods are probably the cause of these unpleasant symptoms and not the anesthetic.

A few words regarding nitrous-oxid administration may be in place. The gas-bag should be free from air. The inhaler should have two valves so fashioned that the patient does not rebreathe the same air. The cone should be closely applied, a hard rubber cube being first inserted between the teeth. The patient should be instructed to breathe deeply. As soon as cyanosis, stertor, and muscular relaxation are produced the gas should be discontinued and fresh air admitted. As soon as the patient shows signs of returning consciousness the gas should be readmitted. In this way I successfully maintain nitrous-oxid anesthesia for from twenty to forty-five minutes. If ether is to succeed the gas the closed inhaler should be closely applied, etherization then being conducted in every way as if the gas had not been employed.

*Administration of Ether.*—About one or one and one-half ounces should be poured upon the gauze, the patient being encouraged to breathe deeply. This is completely the reverse of chloroform administration. The cone should never be suddenly applied to the patient's face. As the upper air passages become accustomed to the vapor the cone should be gradually brought to cover the nose and mouth, excluding as much air as possible. Complete narcosis, which is manifested in the same way as anesthesia by chloroform, in non-alcoholic patients average five minutes. If ether is administered in this way the unpleasant symptoms will rarely occur. The same attention to respiration, pulse, pupil, and the color of skin should be given as with chloroform. It should be carefully understood that ether should not be continuously administered. After the patient is anesthetized the cone should be removed frequently,

permitting him to breathe fresh air; when reapplying the cone a very small quantity of the anesthetic will suffice for further narcosis. It is frequently said that one cannot with any accuracy gage the amount of ether necessary for any particular narcosis. In reference to this it may be replied that a narcosis lasting two hours can, with a closed inhaler in non-alcoholic cases, be maintained with from three to four ounces.

Ether should be administered in cases in which chloroform acts unsatisfactorily and in which dangerous symptoms repeatedly manifest themselves; in acute hemorrhage, as the vasomotor tone is stimulated while it is depressed by chloroform; in shock, when an anesthetic is necessary, ether is to be preferred. In general pulmonary emphysema it is far safer than chloroform.

Children take ether remarkably well. Its usual objection is its liability to irritate the respiratory mucous membrane. I do not think it more irritating, if properly administered, than chloroform. Old age is said to contraindicate ether, because of a preexisting chronic bronchitis in many cases. Properly administered it will not increase bronchitis. It is particularly indicated in old age since it is a cardiac and vasomotor stimulant. In fatty heart, endocarditis, syncope, if an anesthetic must be used, ether being less dangerous than chloroform, should have the preference. At night ether is preferable to chloroform, being less irritating to those about the patient than chloroform. Its liability to catch fire can be obviated with a little care.

*Untoward Symptoms During Narcosis and Means Used to Combat Them.*—Cyanosis. This may be due to falling back of the tongue on the epiglottis, malpositions of the patient, in which the head is lower than the body or in a continued Trendelenburg position. To remedy the first, pressure forward behind the mandibular rami will usually answer. If this does not suffice the tongue forceps may be applied or a tenaculum passed back near the base of the tongue and traction employed in a forward direction. If this occurs frequently it is better to pass a heavy silk thread through the tongue. This device is, however, very rarely necessary. The head should always be on a level with the rest of the body; this will obviate the second cause of cyanosis. Patients operated upon in the continued Trendelenburg position should, from time to time be placed in a horizontal position, as the pressure of the abdominal contents upon the diaphragm and the organs of the thorax impedes respiration. Mucus, saliva, blood or any foreign body becoming impacted in the pharynx or larynx may impede respiration. Removal with a sponge will usually answer. The impaction of loose

teeth, or particles of undigested food, is prevented by proper preparation of the patient. If they should be the cause of obstruction the forceps or finger will usually dislodge them. If it does not, complete inversion of the patient and slapping the back vigorously will usually suffice. Efforts at vomiting indicate incomplete anesthesia. Gently pushing the anesthesia will abolish this reflex. If vomiting occurs the patient should be turned completely on the side with head slightly lower than the body. Before continuing the anesthetic the patient's mouth should be thoroughly cleansed. Blood entering the larynx will interfere with respiration. If not prevented it will cause death by asphyxia. If this occurs during the operation, the patient should be placed in the Trendelenburg position. If this does not quickly restore the patient tracheotomy or laryngotomy may become necessary. I have had but one case in which this became imperative. The patient was undergoing operation for extirpation of the external carotid artery, and excision of the floor of the mouth. From the inhalation of blood and mucus he stopped breathing. In this case the scalpel introduced into the cricothyroid membrane immediately produced relief.

Over dosage by a too concentrated or prolonged administration of an anesthetic is depressing, or if still continued, will cause death by paralysis of the vital centers. Ether causes death usually by asphyxia. Administered properly it always increases cardiac and vasomotor tone. If prolonged and concentrated, circulatory depression will result, death really being due to asphyxia. There is still a diversity of opinion as to whether chloroform causes death by cardiac or respiratory paralysis, the Edinburgh School and the Hyderabad Commission especially regard respiration of prime import, and recommend that strict attention to the breathing is the all-essential in chloroformization. More recent investigators, both in Europe and America, maintain that the pulse should be the anesthetist's particular care. Undoubtedly, chloroform may cause death first by respiratory paralysis, though most investigators claim (and correctly, I believe), that the heart or the circulatory apparatus fails in the vast majority of cases. Occasionally, they both fail at the same time. According to Hill of London, "chloroform produces a primary failure of the circulatory mechanism and secondary failure of the respiratory centre. The respiratory center fails to act from both direct poisoning by the drug, and from anemia of the medulla, produced by the fall of arterial tension. This is proven by the fact that the action of the respiratory center can be renewed by raising arterial tension; that chloroform more than any other agent

rapidly abolishes the mechanisms which compensate for the hydrostatic effect of gravity; that it abolishes these mechanisms by paralyzing splanchnic vaso-motor tone; it also produces paralytic dilatation of the heart."

*Treatment of Chloroform Syncope and Threatened Death by Etherization.*—The anesthetic should be discontinued and fresh air admitted to the room. The patient should be quickly inverted by pulling him to the edge of the table until his legs hang over its edge. Raise the foot of the table and rest it on two chairs or a bench. This refers to those cases in which a regular operating-table is not used. Artificial respiration, preferably by Sylvester's method, about eighteen respirations a minute, should be practised. Rhythrical traction of the tongue, Labordes' method, eighteen times per minute, will stimulate respiration. Applications of cloths wrung out of very hot water over the region of the heart will stimulate it to increased action. The Koenig-Maas method of rapid compression of the chest, the thumb of one hand being applied over the heart, will stimulate both respiration and the cardiac beat. Direct insufflation of air into the chest by bellows (Fell) or by means of a soft rubber catheter introduced into the trachea, may sometimes be valuable. The anesthetist takes several deep inspirations, then exhales into the catheter to his entire extent. Introduction of a normal saline solution into a vein, the temperature being  $105^{\circ}$  F., or if into the rectum the temperature being  $113^{\circ}$  F., is of supreme value. The recurrent rectal tube of Dr. R. C. Kemp may be used, the water continually flowing. I have had excellent results in cases in which this was done. Hot coffee, introduced into the colon, is excellent. Atropin  $\frac{1}{60}$ -grain, and strychnin  $\frac{1}{60}$ -grain subcutaneously, being sure to have dosage large enough, are indicated. Amyl nitrite should never be used. It increases vasomotor depression. Alcoholic stimulants are contraindicated, as they tend to deepen narcosis.

*Remote Sequels of Anesthesia.*—These are nausea, vomiting, bronchitis, pneumonia, nephritis, and paralysis. Nausea, vomiting, and bronchitis are more frequently the results of improper preparation of the patient and of improper methods of administration than the anesthetic itself. In my experience nausea and vomiting have been the exception, following anesthesia either by ether or chloroform; if it persists, one-half ounce of hot water, or something cold, at varying intervals, with or without the addition of 10 drops of lemon juice, will often abate it. The factors in the production of pneumonia following ether are a predisposition on the part of the patient; supersaturation and inhalation of cold ether by open inhalers;

septic inhalers; sudden chilling of the patient. Pneumonia is an exceedingly infrequent sequel of anesthesia. Bronchitis is occasionally seen. Nephritis, I think, is more frequently caused by chloroform than by ether. Proper administration of the anesthetic and the reduction to the smallest quantity possible to produce perfect anesthesia will reduce this complication to a minimum. Paralysis can be central or peripheral in its causation. The latter is most frequent, and is caused, usually, by pressure upon a supplying nerve or by pressure of a crutch or apparatus for maintaining the position of the patient. Central paralysis may be caused by rupture of a vessel in the brain. An improper method of administering the anesthetic is here the cause, as it is in so many other complications during or following narcosis.

The substance of this paper is based upon upward of 1400 cases of ether and chloroform narcotics actually administered (not merely observed) by the writer.

#### SUTURE AND LIGATURE MATERIAL: ABSORBABLE OR NON-ABSORBABLE?<sup>1</sup>

By SETH CHASE GORDON, M.D.,  
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It is evident to the most casual observer in the profession that this question is still unsettled, if, indeed, it ever can be settled absolutely. It seems desirable that there should be as much unanimity as possible and the object of this paper is to invite the fullest and freest discussion. The different opinions held by men equally experienced and honest must leave the younger members of the profession in much doubt as to the course they shall follow. Sims revolutionized the practice of surgery by the introduction of silver wire in vaginal operations, and Emmet has continued it until to-day. Halsted uses it very extensively, but for other reasons than the original one offered by Sims. His principal reason is that it is not only capable of absolute sterilization, but is of itself a germicide. He buries it and closes the external wound with it. With these notable exceptions, this, like all other metallic sutures, which have had more or less favor, has been rather relegated to the lumber-room of surgery.

In the opinion of the writer the aseptic quality of silver wire entitles it to preference over nearly all kinds of non-absorbable material. Silkworm gut would come nearer to this than any other. Silk is perhaps more generally used than all other material of this class. Some surgeons claim that silk

<sup>1</sup> Read in the Discussion, "Should Non-absorbable Ligatures Be Discarded in Gynecological Surgery?" at the Twenty-third Annual Meeting of the American Gynecological Society, Held at Boston, Mass., May 24, 25, and 26, 1898.

should not be classed under non-absorbable, but too many instances of fistulous openings continuing until the ligature or suture has appeared, are evidence to invalidate such a claim. Every hospital in the world and nearly every surgeon of prominence can furnish such evidence. Silkworm gut can be impeached on similar testimony. Halsted uses no absorbable suture. If I understand this distinguished surgeon of Johns Hopkins correctly, he would prefer absorbable sutures provided he could be sure of freedom from septic germs. I may misunderstand his position. From all data at hand I have nearly reached the conclusion that the profession generally would, for most purposes, prefer absorbable material for both sutures and ligatures if they could be satisfied on two points: First, that it would not be absorbed until it had accomplished the object for which it was used, *viz.*, retain the parts in apposition until complete union had taken place, or in case of ligature of a vessel, until it is safe from hemorrhage; and, second, that the material is absolutely aseptic at time of use and will remain so until absorbed.

Assuming the second proposition proven let us examine and see what is absolutely necessary to hold the parts in apposition and how long it is necessary for a suture to last to do this. Repair of tissues when wounded, everything being aseptic, and the parts accurately approximated, is a perfectly normal, physiologic process, simply a regeneration of tissue. If no strangulation takes place (*i. e.*, interference with the circulation) repair begins at once and in twenty-four hours union is established by a plastic material which consolidates rapidly and becomes permanent. If by any means the surfaces could be retained in contact without the intervention of sutures the reparative process would go on much more rapidly, because no part of the circulation would be vexed by the pressure of sutures. Warren, in his "Surgical Pathology and Therapeutics," under the article, "Process of Repair," says, "Formerly the changes brought about in the tissues, by means of which repair was effected, were supposed to be caused by inflammation. It was thought that a smart inflammation was necessary to glue the lips of a wound together. Aseptic surgery has demonstrated the error of this view and it is now known that the two processes are quite independent of each other." This view of inflammation and repair was taught by Peaslee fifty years ago and I, as a disciple of his, have believed and taught the same during my whole professional life; that so far from inflammation being a part of the reparative process it is distinctly antagonistic and destructive to it. Warren further shows that while actual repair will take place in aseptic wounds in a very few days, yet complete

solidification requires about three weeks. Therefore while superficial wounds will require sutures but a few days, deep-seated ones, like abdominal section, may need suture material that will last longer. It does not follow from this, however, that sutures need be buried if non-absorbable, for they will act to a greater or less degree as a foreign body and attract around them an exudate to encapsulate them, a material much less durable than normal repair tissue.

The absorbable materials for sutures and ligatures are catgut and kangaroo tendon. Dr. Marcy of Boston has used the latter for many years and is fairly entitled to all the credit pertaining to its introduction; his reports have been carefully presented to us and no one can question that in his hands it has been very efficient. My own experience with it has been limited and my observation among my colleagues does not encourage me to use it any more. It may be that it has not been carefully prepared or properly used. My chief objections to it are the short strands preventing over-and-over suturing, which I do very much in hysterectomy, and the possibility of its remaining unabsorbed too long and producing fistulous openings. I know of many instances of this, although it may have been due to faulty technic. Doubtless catgut is used more extensively than any of the absorbable materials. Its chief merit, in my experience, is that it rarely fails of absorption, and it is elastic, so that if a suture be drawn too close at first it soon gives enough to prevent strangulation of tissue. In this way one can do the over-and-over suture, an important thing where hemorrhage occurs in parts where much difficulty is experienced in ligating vessels in other ways.

The objections which are urged against its use are: First, the fear of infection owing to the extreme difficulty of rendering it strictly aseptic. So great is this fear that such men as Halsted absolutely refuse to use it or have it used by their assistants. Halsted claims that no specimen that he has examined is free from pathogenic germs; his authority is of more weight from the fact that all materials used at Johns Hopkins Hospital are subject to the most careful culture. Another objection is that if it is rendered absolutely sterile the fiber is to a great degree impaired and thus loses its strength. A third objection is that it is absorbed too soon and the tissues separate before complete union has taken place. While the fear of infection is paramount with some, in my opinion by far the larger number object to the material on the ground that it does not last long enough to prevent hemorrhage or to hold deep-seated tissues in apposition until union is solid. It is a very common expression among surgeons of my

acquaintance, "I should like to use catgut but do not dare to. I am afraid of hemorrhage." The feeling begins to be general that an absorbable suture is the ideal one, and one by one surgeons are coming to use it.

Since 1894 I have used no suture or ligature that was not absorbable, with the single exception of silkworm gut, and that only for closing the abdominal wound. In the latter case I include all the tissues with the silkworm gut, commencing from within and bringing the needle out, threading the other end and carrying it in the same way through the opposite side; this I believe is a preventive against stitch abscess, as I rarely see one. All my other ligatures and sutures are of catgut. In hysterectomy I use the over-and-over suture from beginning to end of the operation and nearly all ligatures used in the pelvic cavity are carried through the tissues by a needle and tied afterward. This is done to avoid slipping, which is so apt to occur when catgut is used in the ordinary manner. In commencing a hysterectomy I include a portion of the broad ligament, and after ligating as strongly as possible I carry the needle below the point of ligation, through the ligament, tying to the free end already used in the first ligature. In this way I secure the ligature from slipping from the ovarian artery, an accident which often happened before taking this precaution. The over-and-over suture is continued from that point on to and including the uterine artery, which I secure in the same manner. If the abdominal walls are thick I usually stitch the fascia with an over-and-over suture of very small catgut. It may not be necessary in ordinary cases, but seems best in the cases described. In finally closing the abdominal wound the silkworm-gut sutures should be drawn well up and tied just close enough to fairly approximate the surfaces, but not tight enough to depress the skin or in the least strangulate the tissues. Within two or three years I have allowed these sutures to remain at least two weeks and then removed every alternate suture, allowing the balance to remain from three days to a week longer. By this method the parts are kept from any strain and hernia is almost unknown; in my opinion this is a very important step in its prevention; rarely is there any redness in appearance even at the end of three weeks.

For radical cure of hernia I have found the buried mattress catgut suture to be sufficient, especially since I have made the incision freely above the internal ring. One modification of this operation, both of the Bassini and Halsted, I have made, which I like and shall repeat in a favorable case. Instead of closing the canal by buried sutures and then placing

the cord between the surface and the fascia and closing the fascia over it, as in the Bassini, I place the cord above the fascia, after closing it separately, and then close the fatty and connective tissue, which lies between the fascia and the skin, over the cord (with catgut), instead of closing the skin over the cord as in Halsted's operation. This leaves the cord free from the skin and prevents adhesion to it. In all previous operations I have seen more or less swelling of the testicle, both in the Bassini and Halsted methods. In the instance in which I followed this procedure the fascia was thin and was closely bound down to the edge of the canal so but little room was left after the canal was closed. I feared if I did the Bassini operation it would press too hard on the cord. The result was that no swelling or soreness occurred in the testicle and the patient recovered with no discomfort from these usual complications. Catgut is the only suture that would have fitted such a condition without producing more or less strangulation. I do not know of any case of failure in hernia operations which has been in any way fairly attributable to the catgut suture. I do not use the chromicized gut for the reason that in many cases it is so hard that it will not be absorbed, and if by chance it should not be absolutely sterile very great harm would result from the operation, and even were it sterile and non-absorbable a foreign body is left which interferes with free circulation of the part, hence with perfect nutrition and repair.

Our object in hernia operations is to close the ring and canal perfectly throughout, and it is safe to assert that two or three weeks at most are sufficient for this, and as well-prepared catgut will certainly last that time, when buried, hence Nature's own union, when perfect, must be stronger than any artificial union. All exudate thrown out around a buried non-absorbable suture must be of much lower vitality than normal repair tissue, and consequently must be much more easily absorbed, thus rendering parts less resistant to pressure from within. The operations for hernia by injection of stimulating and corrosive remedies produce an exudate which lasts for a time and the patient is led to believe a cure is effected; but most of them give way after a time, the exudate having been absorbed. So far I have been entirely satisfied with the buried catgut suture, closing the canal, transplanting the cord by one or the other methods resorted to and uniting the skin by an over-and-over fine suture, or by Marcy's subcutaneous suture. Successful operations for hernia would seem to be as good a test as any operation in surgery, and if an absorbable suture accomplishes firm union of the tissues one cannot wish to leave a foreign body, which if it does anything must do harm.

by interfering with normal circulation through surrounding itself by an exudate of low vitality. I have used catgut in all operations about the uterus and vagina, both for recent lacerations and those more remote and if at some time I have had partial failure it has doubtless been due to some fault in technic rather than to the catgut. I am sure that I have had many less failures from catgut than from the non-absorbable suture. There is this to be said, however, on the other hand, that when I used silver wire the profession was not doing aseptic surgery.

Perhaps one of the very strongest tests of the catgut suture is in the operation for cleft palate. This I have done repeatedly and, as a rule, with absolute success, never having had a *complete* failure since I began its use. Mr. Owen of London told me in 1890 that, in his experience, fully fifty per cent. of his operations were failures with silver wire. Occasionally I have found one or two stitches give way, leaving the cicatrix gaping, but generally the spaces have filled in by granulation afterward, so that no second operation was necessary. Mr. Owen admitted to me that he should like to try the catgut, for theoretically it appealed to him, but hitherto he had feared to use it owing to a lack of confidence in its durability for a time sufficient to produce union. Upon my statements regarding my own cases, he said he would gladly try it at the very next opportunity. I think Mr. Owen voices the general feeling about absorbable sutures; all recognize the difficulty attendant upon the use of non-absorbable ones, but have not full confidence in catgut, some fearing it for septic reasons, but the majority from lack of confidence in its durability.

Among my early operations of perineorrhaphy, like every one else, I used silver wire, but frequently removed it in four or five days and found everything well united, even in a case of complete laceration; indeed, in the first case of complete laceration for which I operated I ordered the sutures to be removed at the end of the fourth day. It proved a success but I confess that subsequently I did not dare repeat the procedure. All of us have seen how much the wire sutures cut the tissues when left a much longer time than this. The fault in part no doubt lies in twisting the wire too close and not allowing for the effusion of serum from the denuded surfaces and swelling.

In cases of vesicovaginal fistulae I have had no opportunity of trying catgut, such accidents having almost gone out of the domain of surgery. I should certainly try it should occasion offer. I should not attempt to close abdominal incisions without the aid of silkworm gut, as it is retained longer. Some surgeons have had good results even in this operation

with absorbent material, closing each layer separately. I think, however, they have mostly used the kangaroo tendon. I do not recall a case of hemorrhage following the ligation of arteries, where the accident was clearly the fault of the catgut, unless it may have been due to the fact that the ligature slipped from the tissues more easily than silk would have done. More care should be used in tying, otherwise slipping may take place. In using catgut in the ligation of small vessels embedded in the tissues the threaded needle is much to be preferred, as I have before said. It is a matter of very much importance to secure pure aseptic catgut, for here is where lies the principal danger. My own experience in preparing it has been very limited and altogether unsatisfactory. I shall make no further attempts in this direction. A friend in whom I have much confidence prepares his own by allowing the crude strands to remain in strong ether for two or three weeks, then transferring to bichlorid alcohol for a similar time, and lastly keeping in ninety-five per cent. alcohol. This does not weaken the gut and he has found no trouble from it in any way. My own preference for the commercial gut is the preparation which comes to us in alcohol. I use it from the bottles without boiling or further preparation. All efforts to more completely sterilize it has, in my experience, but served to weaken it, and so far as I know or suspect there has been no septic influence from it. It is usually uniform in quality and strength, and while expensive one can feel that it is safe to use it for all purposes. Within a few months I have used catgut which is sold in a dry state enclosed in wax paper, and from the statements of the manufacturer I am satisfied that the greatest care is used in its preparation. The only suggestion that I have to make in regard to this preparation is that the strands should be made longer to enable the surgeon to do over-and-over sewing. Care must be taken to moisten the catgut before using, otherwise it breaks easily. I think it is absolutely sterile.

My conclusions are: (1) All suture material unabsorbed must necessarily have more or less exudate about it. (2) Such exudate is of lower vitality than normal repair where tissues are just approximated and not strangulated. (3) A few days only are necessary to insure repair, if there is no infection, and therefore in cases where no great amount of strain exists absorbable sutures only are needed. (4) Where continual strain on the parts is inevitable, non-absorbable sutures should be used for at least two weeks, but should be so placed as to be removable. (5) For such sutures silkworm gut seems to be the best as it can be made sterile and kept so. (6) For all other purposes catgut is sufficient. (7) In-

flammation is always destructive to complete repair. (8) Inflammation is always due to infection. (9) Sterile catgut or kangaroo tendon should therefore fulfil all indications for suture or ligature material, with the exceptions named.

#### RHEUMATIC PHARYNGITIS.<sup>1</sup>

BY LEWIS S. SOMERS, M.D.,  
OF PHILADELPHIA.

W. E., male, aged thirty-eight years, came to my office on May 23, 1895, unable to articulate or move his head without suffering intense pain, attracting attention by pointing to his throat and expressing by gestures his inability to speak. Examination of the oropharynx showed both tonsils to be intensely inflamed and touching in the median line. Saliva was flowing in a constant stream from the mouth and the pharynx was filled with thick mucus. On the left side a collection of pus existed in the peritonsillar fibrous tissue, which was immediately evacuated with a bistoury. About one ounce of pus was discharged and there was some relief from pain, while the tonsil diminished in size sufficiently to enable a view to be obtained of the pharynx, which was inflamed and the walls covered with thick, tenacious mucus.

Temporary relief being obtained by the evacuation of the pus, he stated that he had always been robust and healthy, except that he had suffered for a number of years from rheumatism. The joints of the fingers and especially the feet were enlarged as is seen in long-standing cases, mobility of the articulations mentioned being much impaired, the metatarsal joints being rigid from the chronic changes. About once every year he would have an attack of articular rheumatism lasting for several weeks and always preceded by sore throat, which had not gone on to pus formation except in one instance previous to that time. The present attack commenced three days before his visit to the office and no other evidences of rheumatism had as yet developed. He was given an alkalin antiseptic solution to remove the mucus from the pharynx, and the salicylates were administered internally. Forty-eight hours after this treatment was instituted all pain and swelling had disappeared and the pharynx, except for a slight remaining congestion, was practically well. On the subsidence of the tonsillar and pharyngeal inflammation, an acute, violent attack of rheumatism in the previously affected joints made its appearance and continued for more than a week. One year later an identical attack again occurred, pus was evacuated from the tonsils, both being affected at this time, and the joints were again involved. The tonsillitis, or rather peritonsillar abscess, always preceded the articular symptoms and was relieved only by the administration of antirheumatic remedies.

In many cases of rheumatism the tonsils and pharynx present some evidence of the general diathesis, but it is not always as well marked as was

seen in this patient. Usually suppuration of the peritonsillar tissues is not present as a part of the throat symptoms of the general affection, the pharynx merely showing evidences of slight congestion such as is observed in the familiar form of acute catarrhal pharyngitis. No definite group of symptoms or objective pharyngeal phenomena are seen when rheumatism affects the fibrous tissue of this portion of the upper respiratory tract. Every case varies, no two being alike, and from the local symptoms alone the diagnosis cannot be made, the general condition of the patient and the presence or history of rheumatism being essential to insure the successful treatment of the case.

A number of theories have been expressed as to the cause of the rheumatic diathesis, and until its etiology is clearly defined the laryngologist cannot give more than an incomplete picture of the affection as it manifests itself in the pharynx. To my mind it is definitely proven, however, that the rheumatic affection may be the cause of the tonsillitis, as we have seen in this case, or on the other hand articular rheumatism may result from infection through the tonsils. The latter statement includes, of course, the recognition of the bacterial origin of the disease. This has been well demonstrated in a case reported by Wagner,<sup>1</sup> in which the patient never had rheumatism previous to a severe attack of tonsillitis. The throat symptoms were followed by rheumatism of the knee, and bacteriologic investigation revealed the presence of the same micro-organism in both localities, thus proving the identity of the affection. The disease may primarily localize itself in the fibrous tissue of the pharynx with the formation of pus, the latter in the sequence of events being followed by the typical joint affection.

The symptoms of rheumatic pharyngitis and tonsillitis are not characteristic. The joint or muscle involvement may precede, accompany, or follow the throat affection in acute attacks and pain on swallowing may be intense. While the objective signs in no way explain the intense subjective symptoms, this disproportionate relationship is in a way characteristic in non-suppurative cases or where the pharynx alone is involved. Examination of the throat will show a moderate degree of congestion, some dryness of the mucous membrane, and a slight amount of capillary injection, the patient complaining of throat pain such as is produced only by a great degree of inflammation. In the majority of cases these peculiar subjective symptoms disappear without treatment in a few days, again making their appearance just as suddenly as they went away. This is more or less characteristic of the affection in the

<sup>1</sup> Read before the Northwestern Medical Society of Philadelphia, April 5, 1898.

<sup>1</sup> New York Medical Journal, No. 830, 1894.

early stages but other cases do not act in this manner, the inflammation increasing rapidly in intensity from the very outset and soon followed by a general explosion of the rheumatism; but not until the joints become involved is the nature of the disease ascertained.

Mercantius<sup>1</sup> has described what he considers a rather common group of symptoms referable to this portion of the respiratory tract under the name of acute rheumatismal pharyngomysitis. There is great pain on swallowing and only slight or not any redness of the pharyngeal mucous membrane. The pain becomes much intensified when the parts are subjected to pressure, but no other local or general subjective symptoms are present and articular rheumatism does not develop. The usual forms of treatment prove of no value, the symptoms only disappearing, and then very rapidly, when appropriate general antirheumatic medication is instituted, but local applications as in rheumatism of the joints are also of service. Following repeated attacks of acute rheumatic pharyngitis, or in patients with a marked rheumatic taint, a chronic pharyngitis may develop, in the latter instance without acute symptoms at any time. This chronic form of the affection is characterized by sore throat of mild severity which is more a feeling of local irritation than a definite pain, and this feeling is more or less constant, being accompanied by no objective signs except a slight thickening and restricted elasticity of the pharyngeal walls. The fibrous tissue alone is affected and inflammation of an acute character is never observed. It is usually seen after middle life, while no special age exerts any influence in the other varieties except as in rheumatism generally.

The diagnosis of the various forms of rheumatic pharyngitis must be based essentially on the history of the patient, the eccentric character of the subjective symptoms, the absence of special throat lesions, and the results of treatment. The protean character of the rheumatic manifestations, rendering a prompt diagnosis somewhat difficult, may be illustrated by the following case:

A. B., female, aged twenty-three years, was first seen January 19, 1898, complaining of irritation of the throat and the presence of a rash covering the entire cutaneous surface of the body. On examination the pharynx was found to be slightly sclerotic and the tonsils somewhat hypertrophied. Other than this nothing of special interest was found in the upper respiratory tract. The skin eruption consisted of macules varying in size from the head of a pin to a silver dollar. They were deep red in color, disappeared on pressure, and were irregularly round in shape. No subjective symptoms except a slight itch-

ing were present and the girl was otherwise apparently in fair health. She stated that seven weeks previous to that time she had had a severe attack of tonsillitis which confined her to the house for two weeks. At the end of that period the throat symptoms had practically disappeared, and on arising in the morning she found the skin eruption as described. Her physician treated the skin eruption for five weeks without making the least impression upon it, while the pharyngeal irritation still continued uninfluenced by medication.

When I saw the case the question naturally arose as to the cause of the apparent relation between the tonsillitis and the dermal eruption. From the subjective symptoms, and as a result of an examination of the throat and skin, it seemed impossible to make a diagnosis sufficiently accurate to allow of proper treatment. Further questioning elicited the fact that fourteen years previous she had had a severe attack of muscular rheumatism which confined her to bed for a number of weeks, and at irregular intervals since she had had slight attacks, but never of sufficient severity to incapacitate her from work. After a time the rheumatic attacks ceased completely, but she was subject to attacks of tonsillitis and pharyngitis, which never went on to pus formation, the last attack of the throat trouble, which was followed by the eruption, being worse than any she had experienced. Basing the diagnosis of rheumatism on the previous history, and using no local treatment whatever, but giving the salicylates and strychnin internally, the rheumatic nature of the affection was soon made evident. Within two days after this treatment was instituted the pharynx no longer troubled her, and within one week the skin eruption had entirely disappeared.

In all forms of rheumatic involvement of the oropharyngeal tissues, relapses are more or less frequent, usually at short intervals, and in a smaller proportion of cases a pharyngeal outbreak of the general affection makes its appearance at least once a year. The general treatment, with appropriate antirheumatic medicine, has been sufficiently pointed out in relating the history of the two cases, and on the salicylates alone can we depend to obtain favorable results. Local treatment of the throat is usually of little value but hot applications will sometimes prove helpful in acute cases. Pharyngeal massage to restore the tone of the parts may be tried in long-standing cases as an adjuvant to internal treatment. Electricity has been recommended and may prove of service in a few selected cases, both the galvanic and faradic currents being available.

#### *Ointment for Leprosy.—*

B.	Ext. chelidonii	{ aa . . . . .	3 iss
	Airol		
	Resorcin		
	Lanolin		q. s. ad. 3 ii.

M. Sig. External use.

<sup>1</sup> *Gazetta Medica di Torino*, 1892.

**WAR ARTICLES.****NEWS OF THE WEEK.**

ONCE more the unlooked-for has occurred and the desperate dash of Admiral Cervera was the opportunity of Commodore Schley. This might well be called "The war of unexpected events," so rapidly are the conquests fairly forced upon our young but vigorous Navy.

Santiago de Cuba is not a place of importance to our Army or Navy, nor was it so considered until the cream of the Spanish Navy deliberately entrapped itself in the enclosed bay upon which the city is located; then its capture was necessary in order to secure a vantage-ground from which the fleet might be attacked by land forces while our vessels guarded the entrance to the bay. But again our plan went astray, for just as we waited with all confidence to hear the news of Santiago's capture after the two days of terrible fighting, the Spanish ships came in boldness or in desperation through the narrow inlet and in two hours were totally demolished.

The continued good health of our soldiers in Cuba is as unexpected as gratifying and yet we must not hurrah until we are out of the woods. True, the medical and surgical facilities and the arrangements for nursing the sick and wounded are admirable, considering the short time available for preparation, but over-confidence and a feeling that after all the dangers to be met were exaggerated, may be followed by a siege of disease which will overwhelm the entire hospital department.

Our men have not been in Cuba long enough for an epidemic of yellow fever to break out among them, but the danger of such a pestilence increases now with every day.

In the matter of diet the Spaniards in their plain living ordinarily have the advantage in warding off the diseases of a tropical climate. A Spanish soldier's rations, when he gets any at all, consist of one and one-half pounds of bread per day; all else he must buy himself. If he can get a little oil and an onion, with the omnipresent cigarette, he has no complaint to make, but if he can buy, beg, borrow, or steal a pint of light wine he is utterly happy.

Exact statistics are not as yet available, but observation so far tends to show that owing to the use of the modern rifles the instant deaths amount to nearly twenty-five per cent. of the total number of men hit by bullets, as against four and one-half per cent during the war of 1861-64. But a brighter story comes from the hospitals where the wounded men, treated by modern methods, are recovering in greater proportions than the most sanguine dared to hope.

**SUPERSTITIONS OF THE PHILIPPINOS;  
DANGER OF SNAKE-BITES; TAXES;  
NATIONAL LOVE OF  
GAMING.**

[From Our Special Correspondent.]  
WITH ADMIRAL DEWEY'S SQUADRON, OFF MANILA,  
PHILIPPINE ISLANDS, May 22, 1898.

It is just three weeks to-day since the great battle, and the quiet of an Anglo-Saxon Sunday rests over the fleet. I understand the Spaniards here are boasting that a squadron of Spanish warships is on the way to drive Dewey from the Philippines, but little uneasiness is felt by the Americans as to the truth of this rumor. There is, nevertheless, some anxiety about the non-arrival of reinforcements, and speculation whether Aguinaldo, the rebel leader, who lately came on the "McCullough" from Hong Kong, will be of any real assistance to us. What the action of the rebels will be is uncertain. In the interior the natives are ruled principally by the monks, who are only a little less greedy for the Church than the Spanish officials are for themselves, and it is generally believed that the Islanders would be glad to be under American rule, though the Spanish priests represent the Americans as heretics, and as a people practically without religion, who forbid baptism and the religious solemnization of marriage.

There is a revolutionary society here which the Spanish call the "Free Masons," but whether it has anything to do with real Masonry or not I have been unable to learn. The priests denounce this society, and it is to be remembered that it was a priest who notified the governor of the plot among the members of this order a number of years ago to massacre the Spanish officials and priests, which had been communicated to him in the confessional by the wife of Pedro Roxas, one of the supporters of the revolution. Roxas, who was one of the wealthiest planters in the islands, after his property had been confiscated, was eventually shot. Horrible stories are told about the treatment by the natives of Spaniards who fell into their hands at that time. Many of the monks were slaughtered, some of them being dismembered a limb a day, while others were burned alive. It is clear that our proposed allies will have to be very gingerly dealt with, for they are ignorant and superstitious and have proved themselves as cruel as their Spanish masters.

A physician who has spent many years in these islands gave me an interesting account of some of the superstitions of the natives. They believe in witches and in evil spirits, and some of the means taken to exorcise these demons are violent in the extreme. For example, evil spirits are believed to hover about a pregnant woman waiting to snatch the soul of the unborn infant; and when labor com-

mences the *mabuling-hilot*, or midwife, is summoned in haste, for, as the midwife is supposed to be deeply learned in ways of dispersing witches, a doctor seldom assists at the *accouchement* of a native female. In case the labor is prolonged it is believed that evil spirits are holding back the child, and the midwife procures some gunpowder which is exploded close to the suffering woman's head, this being the approved method of driving away the evil influences supposed to be at work. When the child thus bewitched is finally born, it is placed on a pillow in an open door or window so that the air may facilitate the escape of the bad spirits, which are exorcised by burning three tapers on the face of the child, one on each cheek and the other on the chin. Sometimes the youngster receives three burns, but the ceremony generally goes off without accident. The priests do all they can to discourage these practices, but their efforts are of little avail. The natives who are converted to Christianity change their evil spirits for good ones and believe that an angel instead of a witch assists at the birth of every infant and follows it through life. Some sort of supernatural guardian they insist on having, so the priests encourage the belief in the angel. When anything is stolen a witch is called upon to find it, and no more wonderful stories are told of the discoveries of St. Anthony than the natives tell of the witches' aptness in detecting robbers.

Any one having much to do with the various primitive races is surprised at the similarity existing between their superstitions and traditions. The incantations of the natives of India and Asia are paralleled in the Philippines, and the witches are said to hold *sabbat* here as well as elsewhere. The belief that certain sounds have power over non-human presences seems to be universal, and the invocations used by the Philippine Islanders are said to be preserved in secret manuscripts, as are those of the peoples above mentioned. Another parallel is found in the tradition in regard to the formation of these islands. The natives, who of course originally knew nothing of the outside world, say that ages ago a giant bore the earth on his shoulders, but after a while he got so tired that he dropped it into the sea, wherein it sank so deep that only the mountains were above the water, these mountains being the islands they inhabit. The giant is, of course, the same as the Atlas of Greek mythology.

There is a greater proportion of quack doctors in the Philippines than in America, and the Chinese disciples of Esculapius have great influence. They generally use only vegetable medicaments, and in the cure of tropical diseases these solemn-looking Orientals have better success than their European rivals.

They have a wonderful cure for the itch and the other skin diseases so common among the Islanders. On a previous visit to Manila I made the acquaintance of one of these Chinese doctors, and learned something of his method of treating certain diseases. Though he had been to Europe, he apparently knew nothing of surgery, and his remedies were very simple, quinin, opium, mercury, arsenic, and some mysterious Chinese drug, the name of which I have forgotten, being his principal curative agents. I understood that he never used leeches, although they are very plentiful throughout the islands. He claimed to have an infallible cure for pulmonary tuberculosis, which is very common here, and he was held in high esteem by his fellow practitioners on account of the many wonderful cures that he had effected.

The natives have a remedy for scorpion-bite which seems to be very efficacious. These bites cause a sharp, burning pain, and the part swells and becomes hard and white, but a cold application of crushed garlic relieves the pain almost instantly and reduces the swelling. The island abounds in poisonous snakes which are a real menace, the bites of several varieties almost always proving fatal. The most common symptoms of snake-bite are profound exhaustion, fever, and intermittent pulse, nausea, and great rapidity of respiration; the speech is indistinct and the pupils dilated. Snake-bite is so common in the Philippines that the American troops, if they come here, ought to be instructed how to apply ligatures to a bitten limb, and how to treat the victims of the deadly *daghong-palay*. From a considerable experience in this and similar climates, I am inclined to believe that our troops will suffer much annoyance from sore feet, for in the tropics, especially during the wet season, all leather shoes shrink badly, while the feet swell and become very tender. This annoyance may be obviated to a great extent by bathing the feet frequently, twice a day being none too often, and those who take the trouble to do this will be amply repaid in comfort.

As a rule the native women are very cleanly, many of them taking exquisite care of their persons. The younger ones are pretty and coquettish; they do not wear corsets, and in their native costume look very supple, feminine, and picturesque. There is more than the usual percentage of illegitimate children born in Luzon. One of the principal causes of this is the old custom of the prospective bridegroom's serving for a longer or shorter period in the household of the bride's parent, somewhat as Jacob served for Rachel. The priests do what they can to discourage these irregularities, but with only moderate success. Getting married is rather an expensive luxury here, as the Government demands a

tax for almost everything, from carrying on business to cutting down a tree. The tax on an ordinary carriage amounts to a sum equal to \$12 a year, or \$3 for each wheel, and the horse-tax is \$4. There is a regulation requiring forty-days' forced labor for the public from each man during every year; there is also a poll-tax, an income-tax, innumerable stamp-taxes, excessive license fees, and extortionate fines. The income-tax is often collected from people who have no settled income, and the system of fines is both arbitrary and dishonest. How this legalized robbery is enforced during the present condition of things at Manila I have been unable to learn. According to the latest information, meat is now between \$2 and \$3 a pound, and the other necessities of life are in proportion. Business has been partially resumed in Binondo, on the other side of the Pasig, though it is evident that a state of panic exists throughout the city, for many of the foreign subjects are taking refuge at Cavité.

Judging from the character and disposition of the natives in Manila, they are probably spending these exciting times in cock-fighting and other amusements of a similar nature. The cock-fight is to the Philippine Islanders all that the horse-race is to the Americans, and considerably more. The owner of a fine game-cock takes a greater pride in it than in wife or family, and if the bird becomes ill, or is badly wounded in a fight, he is taken to the cock doctor with all speed. These functionaries are important personages, and they have receiving-houses where injured birds are treated. To staunch the flow of blood the wounds of the petted fowls are dressed with a mixture made from tobacco leaves and cocoanut-wine. It is no uncommon sight to see a native going to church with his favorite game-cock under his arm, and when he reaches the church he fastens the bird to a bamboo plug outside, goes in and listens awhile to the mass, then hurries back to his pet. Gaming of all kinds is the special delight of these people, and it would be interesting to know whether the great national lottery, which exists here the same as in Cuba, is as well patronized now as it was in times of peace. Despite the daily increasing evidences of famine within the city I doubt if anything will separate them from their love of gambling which will be found, literally their "ruling passion strong in death."

During a period of about ten years spent in various Oriental countries I have never seen such gorgeous sunsets as we have witnessed while lying at anchor in this beautiful bay, but the boys on the ships declare that the reddest sunset is gray and colorless compared with the glow which will light the sky when we finally bombard Manila.

#### NOTES ON THE AMBULANCE COMPANY.

By HENRY I. RAYMOND, M.D.,  
MAJOR AND SURGEON, UNITED STATES VOLUNTEERS.

THE ambulance company is as yet an undeveloped factor in the medical department of the United States Army in the field. It is still, as it were, in the experimental stage, but bids fair to become in a short time a valuable adjunct to the division hospital in camp, and an indispensable attendant upon the army on the march. It is, indeed, the flying hospital, and when the army is on the move, and the division hospital, with its canvas and its medical and surgical armamentarium tucked away in its seventeen four-mule army transport wagons, twenty-five Red Cross ambulances, with their litter service and their readily accessible supplies both for subsistence and treatment of the sick and wounded, constitute the hospital on wheels officially designated "an ambulance company."

An army corps has for its three divisions a division hospital and an ambulance company, besides a reserve ambulance company for corps headquarters. A division, therefore, of a strength of more than 10,000 men, constituted of three brigades, and each brigade of three regiments, has its own specially designated ambulance service, consisting in our army of 104 privates, 7 stewards, 3 acting stewards, 6 medical officers (one commanding), and 1 line officer as acting assistant-quartermaster. The wheel transportation consists of twenty-five two- or four-mule ambulances, and three, four, or six-mule wagons, the latter for carrying tentage and field-supplies for the train.

The writer being ordered from the transport "Saratoga" in Tampa Bay to report at Chickamauga Park, Ga., for duty with the volunteers, was assigned by General Ward to command the ambulance company, 2d Division, 3d Corps. This company was not yet in existence, but was recruited in the following manner: Each of the regiments of the division (one regiment short) was called upon for its quota of thirty men, and to these were added thirty privates of the hospital corps who had been enlisted as such for a period of three years when the 1st and 2nd Arkansas regiments were mobilized at their State rendezvous. This aggregate of 270 men was assigned to the Division Hospital, which organization selected their allowance of 93 privates (3 of whom were to be appointed acting hospital stewards), and the balance, 177 in number, were assigned to duty with the ambulance company, the surplusage, or difference, between 104 (the recognized strength of the privates of the ambulance company, and 177 being intended for transfer to the reserve ambulance company after preliminary in-

struction and training in their duties as litter-bearers, etc.

The internal economy of an ambulance company is similar to that of a light battery of artillery. This ambulance company has been subdivided into three brigade sections, each under command of a commissioned officer, and further subdivided into regimental detachments, each in charge of a reliable non-commissioned officer, who is answerable to his brigade section commander, and the latter in turn to the commanding officer of the company. From this brigade organization it follows that if any brigade of the fighting force becomes of necessity separated from its division, the corresponding brigade-section of the ambulance company can be temporarily detached to accompany the separated brigade.

Perhaps the most systematic writer upon the organization and duties of ambulance companies in war service is Surgeon-Major Evatt of the English Army Medical Staff. His lucid and elaborate brochure, based upon his experiences as commander of a bearer or ambulance company in the Saukin expedition, 1885, and during the Afghan campaigns of the latter years of the same decade, is an extremely suggestive production and of such rarity that but one copy is thought to be extant in this country, that copy being in the possession of Lieutenant-Colonel Van R. Hoff, Surgeon, United States Volunteers, Chief Surgeon, 3rd Army Corps.

#### *THE SOLDIER AND SAILOR IN ACTIVE SERVICE IN TIME OF WAR.<sup>1</sup>*

By S. W. ABBOTT, M.D.,

OF BOSTON;

ASSISTANT-SURGEON, UNITED STATES NAVY, 1861-64; SURGEON,  
FIRST MASSACHUSETTS CAVALRY, 1864-65.

THIRTY-SEVEN years ago this month of May, I was returning home one evening from an evening school in my native town, when I learned that a public meeting was in progress in aid of the town military company which was just being recruited for three-months' service at the front. The meeting was mainly made up of the older citizens of the town, men of forty to seventy years of age, who were enthusiastically engaged in subscribing money for the fitting out of the company. Each citizen as he named the amount which he desired to give was greeted with rousing cheers. Little did they think that the war would last four long years and would snatch from them forever many of the best young men of the town.

I sat upon the rear seat of the hall and could not help catching the enthusiasm of the hour, and inwardly resolved to seize the first opportunity to join

<sup>1</sup> Abstract of an address before the Students of the Massachusetts Institute of Technology, Boston.

the boys. The opportunity came very soon for every one who desired to go. Whenever I see, at this day, a body of active, vigorous young men ready to leave home and the fireside to brave the hardships, the rigorous discipline, the dangers, and the risks of the camp and the forecastle I cannot help feeling a renewal of that old-time enthusiasm of 1861 and saying to them "God speed." At the same time I also feel that a timely warning with reference to some of the conditions which are likely to surround the young recruit may, perhaps, prove of some service to him in the future.

In order to state with any degree of accuracy the actual conditions of the soldier or the sailor in time of war, we may very properly divide the subject into certain topics and consider them separately. I shall present only those points which appear to be especially worthy of consideration as affecting the health of the young recruit while in active service. These are: (1) His food and drinks; (2) his clothing; (3) his shelter; (4) the age and size of the recruit, with principal disqualifying conditions; (5) special dangers and diseases to which he is subject and how to avoid them.

*Food.*—The food of the soldier in time of active service is determined by the best authorities upon the subject of food both as to its quality and quantity. In time of active service during war the food of the soldier differs essentially from that of the soldier in barracks in time of peace. The difference is largely due to the fact that the food of the soldier constitutes a considerable addition to the weight of the equipment which he carries, and every possible means is taken to reduce this weight by the use of such foods as are nearly absolutely free from water, which constitutes a very large percentage of all ordinary foods. The soldier in quarters receives good fresh bread cooked in the barracks or purchased for his use. Several times a week he also has fresh meat and fresh vegetables. Now all these articles contain a considerable quantity of water which is not essential to their value as nutrients. The potato, for example, has over seventy per cent. of water, and, when on the march, this would constitute a burden. Hence all such foods are discarded and the use of dry foods, or such as contain the greatest amount of nutriment to the least absolute weight, are employed.

The actual food of the soldier during the Civil War consisted mainly of salt pork,hardtack (or biscuit), and coffee. These three were the food of the army with such additions as could occasionally be had from the sutler. Butter was a luxury. Condensed milk was always in demand, and fresh beef was occasionally furnished when animals could be had for slaughter. This coarse but substantial fare was

nutritious, but when long continued was liable to produce scurvy in consequence of the absence of fresh acid foods. A good mug of coffee twice a day served for the beverage of the soldier. In stating that the soldier, in time of war, has three meals a day I refer only to those quiet intervals when he is in camp and not on the march or making an extensive raid into the enemy's country. Often does the soldier go without food for a whole day and sometimes for two or more days when occasion requires it. Then hunger demands that he shall eat the first thing which may present itself which is at all eatable.

I recall very well a skirmish in September, 1864, when my regiment was drawn up in a cornfield in southern Virginia where the men were all partaking of the green corn without cooking it, pulling it from the stalks and eating it rapidly to satisfy their hunger. Upon each of these hills of corn there was growing a vine having large and fine-appearing fruit, the fruit of the passion-flower. Major Sargent, who was in command, being a good botanist, stated his belief that those must have been planted to serve as a food-supply, so we partook of them freely and without harm.

Sweet potatoes were dug from the fields; pigs, chickens, and other animals often helped to vary the food-supply; but, at the best, it was a very crude and unsatisfactory cuisine when compared with the hotel, boarding-house, or college restaurant, or what is far better, the domestic table of a New England home.

*Drinks.*—With reference to the drinks of a soldier, there is quite as much to be said as with regard to his food. While water enters more or less into the composition of nearly every known article of food or drink to a greater or less degree, and is also by far the most important of all beverages, it is also liable to become a source of serious danger in consequence of its contamination. With reference to alcohol, the best advice that can possibly be given is to let all alcoholic liquors absolutely alone. The best authorities, such as Dr. Parkes of the British Army and Dr. Wood-hull of the United States Army agree in condemning alcohol as harmful to the service. One of these writers says: "The absence of liquor means a clear guard-house. Abundant liquor means a heavy sick-list, a large guard report, and a feeling of doubt as to the command." Spirits neither protect the soldier from cold, heat, nor malaria, and their use is productive of tenfold more harm than good. The abolition of the navy whisky-ration in August, 1862, was followed by better discipline, better order, and better health.

Upon the march the soldier usually has an opportunity to fill his canteen from running brooks by the roadside or at the various wells which are usually to be

found in the neighborhood of farm-houses and cottages. It is always desirable to be on the lookout that such wells and streams are not in the immediate neighborhood of sources which always exist in the rear or near to such farm-houses and are liable by their proximity to contaminate these sources of water. As a general rule, water which comes out of fields, pastures, and territory generally unoccupied by human habitations is safe to drink, notwithstanding the fact that it may be considerably colored and less pleasing to the eye than that which is pumped from the ground in the more immediate neighborhood of villages. When troops go into camp for winter quarters it is customary to dig or drive wells at the end of the company streets, one or more for each regiment, the number depending largely on the facility of reaching water and the character of the soil. Such wells are usually safe provided they are kept from contamination. The principal beverage of the soldier in camp other than water is coffee. Its small bulk and easy method of preparation make it a desirable addition to the ration. It was invariably of good quality, so good, in fact, that Confederate soldiers were always on the lookout to exchange any commodities which they had while on picket duty for this article across the lines. I have dwelt somewhat at length upon this subject for the reason that, in my opinion, we were not then inclined to credit to polluted water so great a share in the causation of disease as actually belonged to it.

*Clothing.*—The clothing of the soldier is furnished by the Government and needs but little comment. As a general rule it may be said that closely woven woolen cloth forms the best material for the clothing of the soldier all the year round, in hot as well as in cold climates. It should be as light in weight as is consistent with durability. The whole weight including overcoat should not be more than fifteen pounds. One good blanket and a rubber poncho should form a part of the equipment of every soldier. This poncho is a most useful article because having a slit to admit the head it forms a good waterproof garment and may be used as a shelter against the rain or as a part of a tent. When spread upon the ground it serves as a temporary dining-table during an active campaign. The weight of the clothing and equipment of each soldier in active service is a matter of importance and in our service is distributed about as follows:

Clothing worn, 10 pounds; arms and ammunition (50 rounds), 19 pounds; camping apparatus, 6 pounds; water and rations, 3½ pounds; blanket, 5 pounds; shelter, 2 pounds; shirts, socks, and small articles, 4 pounds; total, 49½ pounds. This is a minimum. The soldier may, in certain branches of

the service, carry in addition a poncho, ax, hatchet and sling, spade, shovel, pickaxe, and frying-pan.

All the foregoing weights of articles are liable to increase; for example, three-days' water and rations increase the weight of food to nine or ten pounds, and every additional ounce of weight to be carried increases the fatigue of the soldier. It is customary to divide certain articles among several men, for example, such light cooking utensils as are carried on the march.

*The Shoe.*—One of the most important items in the clothing of the soldier, especially of the infantryman, is his shoe. A man who is liable to severe corns, bunions, tender feet, or weak ankles ought not to enlist as an infantry soldier. A good shoe should have a broad and low heel; it should not be made with narrow or pointed toes, and should not be too tight, since allowance must be made for considerable swelling of the feet in long and severe marches.

*Shelter.*—It is a prevalent belief that soldiers are well housed in wall tents or tents with flies and so constructed as to shelter completely from the severity of the weather. This, however, applies in active service only to the staff and line officers, since the carriage of so large a quantity of sheltering material would impose a great burden upon the quartermaster's department and interfere with the efficiency of the army in time of war.

Soon after the organization of the Union Army in 1861, it was found best to require each soldier to bear his own individual share in carrying his shelter, and a plan was devised by which each man carried one piece of tent cloth, five and one-half feet square, having buttons upon three sides. By this arrangement two men could fasten their two pieces together and make a temporary shelter for themselves. It was hardly long enough to cover each man completely. The weight of this shelter was only two pounds for each piece. It had the advantage of indefinite multiplication by means of the buttons, and when in winter quarters several pieces thus fastened together served for the roofs of the log houses then in use.

While on the march in good weather, the ground usually served for a bed, a light covering of leaves or pine boughs being placed on the ground under the shelter. In winter quarters it was customary to build log houses sufficiently large to accommodate from four to eight men in each, either with or without a flooring of boards taken from some abandoned house in the neighborhood. A fireplace of brick or stone was often made at one end and plastered with mud.

The position of the sailor is very different, each

man having his own hammock, which is swung between decks and taken down in the daytime, and in the old wooden men-of-war these hammocks were carefully and neatly rolled up and taken on deck and stored in the nettings, where they afforded a good protection against the fire of small arms.

*The Age of the Soldier.*—The age at which the most effective service is rendered by the soldier may be stated as twenty-five years. The average age of the soldier in the Civil War was somewhat less, probably about twenty-three or twenty-four years. There ought to be a minimum age limit of twenty years, since those who enlist at seventeen or eighteen are not old enough nor well developed enough to endure the rigors of active campaigning. As I now recall the experience of 1861-'65, the surgeon's sick-list was largely made up of the young men or boys under twenty years of age who had not yet been accustomed to leave the comforts of the fireside and the home to engage in active life service. Men, too, who were of extremely light weight or were less than five feet in height did not usually endure hardship well. Parkes says: "To send young lads of eighteen or twenty into the field is not only a lamentable waste of material, but is positive cruelty." Napoleon said: "I must have full-grown men. Boys only serve to strew the roadside and fill the hospitals." The most efficient armies have been those in which the youngest soldiers were not less than twenty-two years of age. It would, however, be entirely proper to enlist young men of eighteen or nineteen, provided that a judicious discrimination could be given, as to the amount and quality of the work to be required of them.

So great is the difference in the mortality of soldiers and civilians that the best life-insurance companies to-day either charge extra rates upon the lives of soldiers or reject them altogether. I have said that the number who die of disease during the war is greater than those who die of wounds, since the Gettysburgs and Chancellorvilles and the Waterloos do not occur every day, but men are taken ill daily from various causes in every campaign and sometimes in large numbers. At the battle of Waterloo and the contributory battles of Quatre Bras, and Ligny, and Wavre on the 16th, 17th, and 18th of June, 1815, it is stated that 60,000 men were killed out of a total number engaged of 300,000. At the battle of Gettysburg, which lasted three days, the surgeons cared for nearly 30,000 men during the days which followed the battle, of whom nearly 7000 were Confederate wounded who were left upon the field. These numbers do not include the Confederate wounded or the wounded Union prisoners whom they took away with them on their retreat, and yet even these numbers are small

when compared with those who were disabled by sickness.

I do not think that young men who are contemplating enlistment sufficiently appreciate the fact that the risks which they run of becoming ill or even of losing life are at least eight or ten times as great as those which are encountered in the ordinary walks of life, and yet the history of the Civil War and the records of the Surgeon-General's office show that this is a fact. It is also true that the deaths from disease were far greater in number than those which resulted from wounds. The deaths from gunshot wounds upon the Union side alone in the Civil War were, in round numbers, 93,000. Those which were due to disease were estimated at 186,000 or twice as many. Those which were due to typhoid fever and diarrhea were 78,000 or nearly as many as those which were due to wounds. As a matter of fact the risk which each man ran of contracting typhoid fever in the Civil War was fifty times as great as he would have incurred if he had staid at home. Stating this in a different manner, out of every 65 men<sup>1</sup> 1 man was killed in action, 1 out of every 13 men died of disease and of unknown causes, and 1 out of every 30 died of typhoid fever and diarrhea. Such a mortality as this in any population in civil life would be reckoned very properly as a most appalling epidemic.

As an illustration of the losses in the Naval Service, the ship's company of the monitor "Catskill" now serving as defence for Gloucester harbor, numbered eighty all told, officers and men. During the six months ending with September 30, 1863, twenty-seven of these were either killed, wounded, or sent away from the ship in consequence of disability from disease.

There are certain ailments to which the soldier is liable in active service which with due care may be avoided; and first and most common are disturbances of the digestive organs. These are usually due to the action of some disturbing element in the diet combined with the influence of hot weather, and upon their occurrence it is desirable that the recruit should at once consult the medical officer of the command for such advice as he may give.

Another very common form of illness is malarial fever, for which the sovereign remedy is quinin. In consequence of a singular prejudice an unfounded fear has arisen to the effect that this remedy proves harmful. Under adequate advice as to the mode of its administration there need be no such fear. Having taken it in very large doses for many days in succession, I can say that it had no harmful effect

whatever and I know this is the general testimony of those who have used it. Should the recruit be called upon to visit a malarious district, it is desirable to be stationed upon elevated ground and upon ground that is dry and porous and not marshy and damp. In such districts exposure to the damp air of the night should be avoided.

Sunstroke is a not uncommon incident to which soldiers are necessarily exposed. It may usually be avoided by keeping the head cool; moistened paper or leaves worn in the hat act as a preventive, and heavy work in extreme heat should be avoided.

Rupture is one of the accidents due to severe straining, lifting, or muscular exertion, and is actually present in from five to ten per cent. of men who have reached the age of forty-five. Should it take place in one who has never had a rupture a surgeon should be at once consulted and advice taken as to the best method of treating it. Severe rupture is usually considered as a disqualifying condition in a new recruit.

Scurvy is a disease which is not common among well-fed troops, but does occur when soldiers have been fed for a long period upon food in which fresh vegetables have been largely excluded. It was quite common in the Army of the Potomac in the last winter of the war. It used to be one of the serious causes of ill health among sailors, but in the present age of steam and consequently of short voyages, it is now of much more rare occurrence. A liberal allowance of lemons, lime juice, and fresh vegetables usually restores the victim to good health.

*Personal Cleanliness.*—Nothing is more essential to the well-being as well as the comfort of the soldier than absolute cleanliness in every particular. Frequent bathing and the liberal use of soap are even more necessary to the soldier than to the civilian. Some of the minor forms of disease which are due to the presence of parasites are very common in camp life. It is no disgrace to have contracted any of these ailments, but it is a disgrace not to get rid of them at once, and to take every precaution to prevent their recurrence. The young soldier must bear in mind that the luxuries and comforts of home life cannot be taken into camp, and that in this respect the camp with its rigorous discipline, its absence of the many conveniences that make one's home attractive, is yet a teacher, severe though it is, and one which will doubtless rarely fail to give young men a measure of independence and self-reliance which must, in the end, prove more valuable than any other sort of training.

The soldier's life in active service is one of hardships. He must necessarily learn to look out for himself and not to depend upon others. Very often

<sup>1</sup> See Scribner's "Campaigns of the Civil War." Phisterer's volume, pp. 70-71.

he may be placed in a position, as when he is upon picket duty or otherwise separated from his command, when he must cook his own food, and must under all circumstances look out for such repairs of his clothing and equipments as may from time to time be necessary. He is deprived of the refining influences of home life, it is true, but it is only the professional soldier of the regular service upon whom this should have a lasting influence, since the volunteer is constantly reminded of the close of the campaign or of the occasional furlough which will return him to the fireside or the home again.

## CLINICAL MEMORANDUM.

### TUBERCULAR MENINGITIS PRECEDED BY ACRODYNIC ERYTHEMA.

By JOHN A. BARKER, M.D.,  
OF PITTSBURG, PA.

ROBERT J., aged four and one-half years, was an exceptionally intelligent boy for his age. His mother died of pulmonary tuberculosis when he was a babe. His father is a stout, healthy man, who informs me that there is no history of tuberculosis or of any hereditary diseases except that of the mother. This boy had none of the diseases of childhood, but when about one year of age he was afflicted with spinal disease, the true nature of which we are unable to ascertain, which resulted in partial paralysis of the left leg, necessitating the wearing of an apparatus to support the member. He was presented at my office September 1st (last) to be treated for nasal catarrh. A careful examination revealed enlarged and swollen turbinated bodies of both nares which encroached upon the septum, and completely occluding the chambers. There was also a copious discharge of mucus. All the superficial lymphatic glands were enlarged to twice their normal size; the skin was pale, dry, and inelastic, the muscles were lacking in tone, and there were clubbed nails. The tongue was covered with a whitish fur, the teeth were nearly all decayed to the level of the gums, the breath was offensive, appetite capricious, digestion impaired, and there was constipation alternating with diarrhea. Urine negative except oxalates and phosphates in abundance. A tympanitic note was elicited over the apex of the left lung, and the breathing, excluding the puerile type, was tense and high-pitched, but there were no râles, cough, or expectoration. The voice was husky, and the respiratory movements were shallow and hurried. The heart's action was feeble, rapid, and irregular, and the pulse soft, compressible, and intermittent. The blood-count showed 2,900,000 per centimeter; hemoglobin, forty-five per cent. He was given a few small doses of the mild chlorid of mercury, and on the following day was ordered syrup of the iodid of iron and a ten-per-cent. solution of hydrozone as a local application for the nasal catarrh. A nutritious diet and plenty of fresh air were enjoined.

He returned September 14th. The blood-count then

showed 3,000,000 per centimeter; hemoglobin, fifty per cent. The discharge from the nose had considerably diminished, nares were patent, and the appetite and digestion were decidedly improved. He was directed to continue the treatment. I did not see him again until October 1st. He had been exposed the day previous to the first chilly winds of the season, which induced a relapse of his trouble, but in a more aggravated form, for the submaxillary glands were enormously swollen and tender; absence of voice and hearing, but no elevation of temperature. A few doses of the citrate of magnesia were ordered. The iron was discontinued, and small doses of Fowler's solution, in combination with potassium iodid, were given instead. On my next visit, October 2d, his left foot and leg were swollen, painful, and covered with a scarlatiniform rash, which in a short time changed to a blue color. The patient screamed with pain, which was greatly exaggerated on the slightest manipulation. Chloroform liniment and dry heat were applied to the affected member, and antikamnia was administered. On my return in the evening I was surprised to find that the right leg had become affected, and not a trace of the previously existing condition of the left leg was demonstrable. All the symptoms were exaggerated, especially the subjective symptom of pain, which could well be compared to the vivid picture of a crisis in locomotor ataxia, and which was but slightly ameliorated by administration of morphin sulphate hypodermatically.

On October 3rd the pain, swelling, and rash had subsided in the right leg and foot, and had moved to the left side of the body. October 4th. The left side of body normal and right side affected. October 5th. The right side of body normal and left arm attacked. October 6th. The right arm similarly affected and left arm normal. October 7th. Face and both ears attacked, the ears assuming a darkish-blue color, and the palpebra and ocular conjunctiva were hyperemic, and there was slight ptosis. No anesthesia or hyperesthesia was demonstrable. After these phenomena had repeated themselves a few times with provoking regularity, they finally reached the right ear, which assumed a blackish-blue color and simulated a gangrenous process. Sloughing, happily, did not occur, which, we believe, was prevented by the timely and frequent application of warmed ichthyo-lanolin ointment and dry heat, the latter being applied by means of a heated smoothing-iron, held a few inches from the ear. So intense was the pain that the patient had to be held while the light flannel cloth, upon which was placed the ointment, was being placed over the ear. I mention this because it is a happy way of applying medicaments to painful parts. The right ear remained in this condition for four days, when all the symptoms began gradually to subside, and by October 18th the ear had regained its normal shape and color, and, on the whole, the indications pointed toward a favorable termination. But, on October 22d, he had several attacks of vomiting, and, at the same time, complained of pain over the frontal sinuses and partial loss of eyesight. The pupils were equal and responded to light, but not to accommodation. An ophthalmic examination revealed hyperemia of the disks

and concentric contraction of the visual field; there was also a convergent strabismus. October 23d. The condition, except for attacks of vomiting, became more marked. Cerebral sedatives in the form of bromids were now administered and other agents discontinued. October 24th. Vomiting ceased, and there were present amaurosis, complete deafness, and clonic spasms of left leg and arm. October 25th. Complete left hemiplegia and clonic convulsions of right arm and leg. October 26th. A general convolution, followed by coma; temperature, 102° F.; pulse, 65; respiration, 14. October 27th and 28th. No convulsions and semi-coma; the patient was able to take some nourishment and to communicate with those about him, but in a rambling, incoherent manner. October 29th, 30th, and 31st. The condition remained the same except the temperature, which was one degree lower. November 1st. The patient was seized with several convulsions, followed by profound coma, and death ended the scene November 2d.

In making a diagnosis of the erythema, erythema simplex, erysipelas, angioneurotic edema, and sclerema were all carefully considered and excluded. Points of interest are: (1) The peculiar mode of onset by being preceded by acrodyne erythema. (2) The patient was always cheerful and not irritable, as is usually the case. (3) The absence of the usual premonitory headache. (4) The regularity with which the erythema migrated, and its apparent disappearance at the beginning of the meningitis.

## THERAPEUTIC NOTES.

*Strychnin in Alcoholism.*—FEDEROFF (*Rev. de Therap.*, June 1, 1898), who has employed strychnin in the treatment of twelve cases of alcoholism has noted the following results: (1) The catarrhal symptoms subside more rapidly than they do in the cases in which the patient is deprived of alcohol and submitted to a strict regimen. (2) The neurasthenic attacks are favorably influenced by the strychnin, and the insomnia, as far as it is dependent upon nervous causes, soon disappears, the strychnin acting better in this respect than the usual hypnotics. Sleep becomes normal at the end of five or six days. (3) The senseless anger and the irritability which characterize alcoholics progressively subside. (4) The depression of spirits gives way to a more tranquil state of mind and the patients become courageous. (5) Other morbid symptoms, particularly the migraine, also pass away. (6) Unfortunately, the chief symptom, the craving for drink, is not influenced to any marked degree. "So that," says the writer, "though one must acknowledge the good effect of strychnin upon the nervous phenomena of alcoholism, it cannot be spoken of as a specific for this disease."

*Hydrotherapy of Round Ulcer of the Stomach.*—WINTER-NITZ (*Blat. f. klin. Hydrotherap.*, May, 1898): The form of a round ulcer of the stomach seems to show that the nervous system has a part in its development, as is the case with perforating ulcer of the plantar region. The

object of hydrotherapy in these conditions is to cause the spasms of the vessels of the mucous membrane of the stomach to disappear. For this purpose baths at 10° or 12° C. (50° to 54° F.), and of three- to five-minutes' duration are given, and applications of cold cloths upon the abdomen, or a cold-water coil upon the cardiac region. The symptoms which yield most easily to this treatment are cardialgia, and hematemesis. The ingestion of bits of ice is a dangerous treatment for hematemesis. It is better to introduce cold fluid into the rectum, a measure which according to the experience of the author will reduce the intragastric temperature, and produce an intense contraction of the gastric vessels. This contraction is only for a short time, but it will often continue long enough to stop the bleeding. To make it even more certain pieces of ice may be introduced into the rectum.

*New Method of Treating Tuberculosis and Other Pulmonary Affections.*—WASSILIEFF (*Klin. ther. Wochenschr.*, No. 22, 1898) has adopted a method of treating pulmonary diseases by static electricity which if it does not cure phthisis, at least comes very near it. The patient seated upon an insulated stool inhales for five or six minutes a discharge of electricity which is directed toward his mouth by the physician. At first the patient feels a dryness of the throat and giddiness. Sometimes the head breaks out in a light perspiration. At the end of six or eight treatments the expectoration diminishes, the sleep is improved, and the night-sweats disappear. In certain cases there is cicatrization of cavities. Non-tubercular catarrhal and hypostatic pulmonary troubles can be entirely cured in from two to eight weeks. The author has had more than four-years' experience with this method of treatment, and the statements which he makes in regard to it are based on the observation of a large number of cases. He does not believe that the good effects noted are due to ozone.

*Pyramidon in Nervous Troubles.*—LANDENHEIMER (*Ther. Monatshefte*, April, 1898) has experimented with pyramidon, a derivative of antipyrin, upon more than one hundred persons suffering from some disturbance of nervous function. The headaches which so often occur during convalescence from various psychoses, almost all yielded to pyramidon in doses of 10 or 15 grains. From one-half to two hours were required for the medicine to take full effect. In the rebellious headaches of alcoholism, pyramidon was given with equally good result, the effect of the drug lasting nearly or quite ten hours. In three cases of cerebral tumor the headache was also stopped, but the dose required at first was 24 grains three times a day. This amount was afterward reduced to 6 grains a day. Painful cramps in the limbs of alcoholic patients were benefited, and one patient who took, without satisfaction, for an infraorbital neuralgia, 120 grains of antifebrin daily, found that 30 to 40 grains of pyramidon taken at a single dose early in the morning would give complete relief for 24 hours. In no instance was any toxic symptom observed. The maximum amount prescribed was 45 grains daily, divided into three doses, and continued for ten days. The writer considers pyramidon

a specific for rheumatism, but this view does not seem to be very well supported even by his own experience.

*Use of Antipyrin in Sciatica.*—KUHN (*All. Med. Central. Zeitung*) recommends hypodermic injections of antipyrin in sciatica, but relief from pain will follow only the remedy comes in contact with the affected nerve. Several times a day an injection of an aqueous fifty-per-cent. solution is made along the course of the nerve, a little below the middle of a line joining the sciatic tuberosity and the great trochanter. The results obtained by this treatment have been rapid and lasting, varying, it is scarcely necessary to add, with the intensity of the affection.

*Charred Straw in Surgery, Especially Military Surgery.*—KIKUZI of the Imperial Japanese Army (*Georgia Jour. of Med. and Surg.*, June, 1898) claims the superiority of charred straw over gauze as a dressing in surgery, and especially in military surgery, since it can be quickly prepared anywhere at little or no cost. As the dust from the charred straw will easily sift through a layer or two of gauze, the neatest method of application is to keep the charred straw in loose gauze bags, which are separated from the wound by a couple of layers of gauze. The gauze may be washed and used again after sterilization if great economy is necessary. The advantage of this new surgical dressing are thus described by its originator:

1. The absorbent capacity of charred straw has been proved to be much greater than that of gauze.
2. Charred straw is ready for use everywhere, not alone in the Orient, and it is easily prepared in large quantities, which is not the case with gauze.

3. With regard to cost, charred straw has the advantage over gauze. An average dressing of the last-named material costs about 1.6 francs (about 31 cents), while a dressing of the same size of charred straw costs only about 0.1 centime (less than 0.02 of a cent).

4. Charred straw is ready for use immediately after having been burned; that is, it is easily disinfected, whilst the preparation of gauze and its disinfection is a complicated process.

5. There is no need of transporting charred straw, as it can be obtained everywhere.

6. In regard to its softness, elasticity, and general usefulness, it differs very little from gauze.

From a military point of view, it is of importance that the large storage-room required ordinarily for surgical dressings may be dispensed with, since, in time of war, the preparation of this material will be carried on wherever it may be required. This observation of the necessity of storage in time of peace, of transportation in time of war, and its cheapness, are three very important points in which charred straw is superior to gauze.

As a dressing for poor patients it can be fully commended for its cheapness.

*Influence of Abdominal Massage upon the Secretion of the Gastric Juice.*—REED (*Med. Press and Circular*, May 4, 1898) expressed his satisfaction with massage especially deeply administered (*pétrissage*) in patients suffering from gastric disturbances with lack of sufficient gastric juice or

lack of muscular power. Massage increases the tonicity of the muscles of the exterior abdominal wall, as well as that of the muscles of the stomach and intestines, and it has besides an undoubted effect upon the glandular action of these organs. In some cases of chronic gastric catarrh the amount of free hydrochloric acid was finally restored under an energetic treatment by massage and galvanism, together with the administration of pepsin and hydrochloric acid for long periods—six months or less—with lavage for a shorter period. The conditions under which massage of the abdomen has been found in the writer's experience particularly useful are: (1) Chronic gastritis in all its forms excepting those accompanied by hyperchlorhydria. (2) Anacidity or subacidity, except when dependent upon acute gastritis or carcinoma. (3) Gastro-ectasia, not dependent on cancer. (4) Atonic conditions of the stomach walls, whether progressed to the stage of dilatation or not. (5) Displacements of the various abdominal organs including: (a) Gastropostis; (b) nephropostis, except in cases where the displaced kidney has become excessively tender on pressure; (c) enteroptosis. (6) Chronic intestinal catarrh, not complicated by deep ulceration. (7) Dilatation of the intestines. (8) Constipation from unknown causes. In many such cases massage often succeeds. (9) In a group of symptoms which comprise especially tenderness over a region three or four inches in diameter including the umbilicus as its center and a marked pulsation of the abdominal aorta in the entire epigastric region. These symptoms have been assumed to denote congestion of the solar-plexus. They are often met with in practice and may be the result of auto-infection from the gastro-intestinal tract. They are usually benefited by gentle kneading of the abdomen in connection with careful attention to diet. The following are the principal contraindications for massage of the abdomen: (1) Ulceration in any part of the stomach or intestines. (2) Cancer of any of the abdominal organs. (3) Acute inflammation in any part of the gastro-intestinal tract. (4) Hyperchlorhydria. (5) Prolapsed kidneys which are acutely sensitive to palpation. (6) Aneurism of any of the abdominal or thoracic arteries. (7) During the menstrual period, when the flow is excessive or when there is a tendency to menorrhagia. (8) In fatty degeneration or marked dilatation of the heart and advanced phthisis, especially with a tendency to hemoptysis, abdominal massage should be practised—if at all—with much care and gentleness.

*Carbonate of Creosote in Pulmonary Tuberculosis.*—Gram of Copenhagen has found rapid and marked improvement of the pulmonary symptoms and of the general condition to follow the administration of large doses of this drug. Beginning with a single daily dose of 30 minims after the mid-day meal he advances to 30 minims three times a day, and never exceeds 90 minims three times a day. He gives preference to the pill form as follows.

R. Creosot carb.	· · ·	3 iiss
Magnesiae	· · ·	3 ss
Pulv. glycyrrhizæ	· · ·	3 iii.

M. Ft. pil. No. C. Sig. To be taken after meals in number as directed.

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SATURDAY, JULY 16, 1898.

## SOME OF THE RESULTS OF FILTRATION OF CIVIC WATER-SUPPLIES.

FIVE years ago Hamburg had an epidemic of cholera, which was traced to the pollution of the drinking-water taken from the river Elbe. There were nearly nine thousand deaths. Altona, just across the river, received its drinking-water from the same river, and yet there were extremely few cases of cholera. The explanation was that at Altona the water was passed through filter-beds. Filtration of London's water-supply reduced the death-rate from typhoid fever eighty-six per cent. Filtration in Warsaw rid that city of typhoid, which had been extremely prevalent there. Ten cities of Europe have introduced filtration, with the immediate result of eliminating typhoid fever.

In this country, Lawrence, in Massachusetts, after suffering from several epidemics of typhoid, found health and immunity in a filter system. A writer on this subject has compiled the statistics of typhoid-mortality of twenty-four cities of the world during four years. In New York, for instance, the rate per one hundred thousand was 20.4, while in Berlin it was only 8, in Vienna 7, in Rotterdam 5.2, and in The Hague 4.9—these four cities using filtered water.

In Chicago the rate was as high as 84, in Washington, 76.6, and the whole average of the cities using unfiltered water was many times higher than those using filtered water. The lesson is so plain and so positive that there can be no doubt of the absolute value of filtration for large cities, and it would mean to a place like New York the saving of hundreds of lives every year.

## SOME LESSONS OF THE WAR.

To one who has not read between the lines of the striking events which have characterized the present war it may seem premature to philosophize or to dogmatize regarding the conclusions to be drawn therefrom. But it must be remembered that decisive, epoch-making occurrences have dominated the progress of affairs; history has been made rapidly and conclusions follow with equal steps.

First and most conspicuous of all stands the fact that the few engagements have been great smashers of theories as well as of cruisers and torpedo-boats. By the experienced, practical commander, as well as the theoretic strategist, war at the close of the Nineteenth Century has been pictured as a cold, scientific, unimpassioned affair, between highly refined instruments of destruction manipulated by men whose personal equation, beyond the simple qualification inherent in trained mechanics, did not enter into the problem. Dash and daring, endurance and pluck, courage and self-possession, were no longer factors of importance. The whole question was to hinge upon the long range, deadly accuracy, explosive powder and rapidity of action of the engines of war. And yet every aggressive movement of this war, whether on land or on the sea, has set these theorists at naught. The well-considered audacity and initiative of Dewey's attack at Manila was the determining factor in securing at so little cost the fruits of that brilliant victory. And what shall be said of the personnel, the steady self-possession, the nerve and daring which characterized the rank and file, officers and men, in the heroic dash upon the enemy's lines before Santiago? No superiority of equipment (for the Mauser rifle is as deadly a weapon as any in the hands of the American forces), nor superiority of position (for that was with the other side), but the moral and physical qualities of the men who were behind the bayonets carried

the heights and won the day. Intelligence and moral force in the individual soldier is after all, even at the close of the Nineteenth Century, the true foundation of an army's greatness.

This is the more gratifying to those who are interested in the progress of civilization in that it demonstrates that a long period of peace does not sap the patriotism nor diminish the courage of a peace loving commercial people and that those qualities of character and mind which win success in the quiet walks of life are equally efficacious upon the battlefield.

#### THE BACTERIAL TOXINS.

THE meaning of surgical bacteriology in the clinical and therapeutic significance of the term would be much better expressed, for all practical purposes, by the term "surgical toxicology." By this it is meant that in the pyogenic and specific infectious diseases, the real source of danger and the real damage to the system, locally and remotely, is not the bacteria themselves but the products of the bacteria. The pathogenic bacteria gain entrance to the system because of a *locus minoris resistentia*, and are enabled to invade new tissues, not because of a power on the part of the micro-organism itself to enter or kill healthy tissue, but because the chemical toxins or toxalbumins produced by the bacteria first prepare the way by lowering the vitality and thereby the resisting power of certain cells. A type of degeneration, a cloudy swelling, is produced and the bacteria may invade the tissues as rapidly as these poisonous substances have destroyed their resisting power. By their action in the walls of the blood-vessels a condition of inflammation is produced with a pouring out of white blood-cells and serum to further impair the vitality of the tissues. On the other hand it is the toxin that, from the very beginning of the process, osmoses into the blood stream as a crystalloid chemical substance and is carried to the thermogenic center to produce fever. If the bacterial growth is active and large amounts of the bacterial poisons are produced the system will be overwhelmed by the dose; cloudy swelling will be produced in the heart, liver, and kidneys, and the heart will be rapid, and the urine scanty and albuminous. The poison in the blood impairs the red blood-corpuscles and the patient is pale and anemic. Finally the patient dies

because the heart can hold out no longer under the poisoning which is as definite and clear as the poisoning by arsenic, phosphorus or any other of the chemical substances that are poisonous to the body.

It is apparent that this chemical product, termed a toxalbumin, is the element of danger to the individual, and it is equally apparent that the clinical symptoms presented by such a patient are to be traced to the toxalbumin as well. The local inflammation, the fever, the rapid and feeble heart, the increased respiration, the anemia and various functional disorders are all dependent upon cell-degeneration in these organs or centers. Let us turn to the treatment of an infection. The one object of septic surgery is to obtain good drainage and the success of the treatment will depend upon the efficiency of such drainage. For this purpose free incisions are made to liberate the secretions laden with toxalbumins and bacteria and an effort is made to conduct them by means of drainage methods into our dressings instead of the blood; continuous irrigation or submersion are established in order that the chemical crystalloid substances may diffuse externally; and it is for a similar reason that the toxin-laden blood is sometimes removed from the veins and its place supplied by normal salt solution in order that we may remove mechanically a portion of the dose. The medication in the case is entirely confined to stimulation by alcohol, strychnine, digitalis, etc., to counteract the effect of the poison.

The bacteria themselves, although recognized as the remote and original cause, are playing a very small part in this scene. Most of us do not remember this often enough in conducting our surgical cases of infection. As has been said before, the term surgical toxicology expresses to our minds more exactly the cause of the symptoms that are present and at the same time gives us a properly directed treatment.

#### ECHOES AND NEWS.

*The Northern Tri-State Medical Association.*—The next annual meeting of this Association will be held at Elkhart, Ind., Tuesday, July 19, 1898. Hal C. Wyman, M.D., is President and H. D. Wood, M.D., Secretary.

*Nurses for the Red Cross.*—The Red Cross Society announces that it will consider the applications of none but trained nurses. Many unprofessional women apply for

positions as assistants, but they are not available for the purposes of the Society.

**Death from Trichinosis.**—Six members of a family named Von Zastrow, living near Binghamton, N. Y., died recently from trichinosis. The disease, as so frequently happens, was diagnosed as typhoid fever, and not till an autopsy was made upon the last victim was the exact condition known.

**A Noted Morphin Fiend.**—A case of chronic morphin poisoning was recently treated at Bellevue Hospital which surpasses all records in the amount of the drug which was daily consumed. The victim is a druggist and for three days previous to admission to the Hospital had been taking daily sixty grains of the sulphate of morphin.

**The Hospital Train in Collision.**—On Sunday night last the hospital train, while bearing a load of wounded soldiers to Fort McPherson, near Atlanta, Ga., met with a rear-end collision. The private car attached was demolished, but no lives were lost. Later the train continued its journey without further inconvenience to its passengers.

**Vaccination in England.**—The bill now before Parliament providing for compulsory vaccination is meeting with persistent opposition. Already ten pages of amendments have been offered and the antivaccinationists are doing their best in every way to discredit the measure. The profession, which now has a strong representation in Parliament, is doing what it can to sustain the bill.

**Yellow Fever Promptly Suppressed.**—The Marine Hospital Service announced July 9, 1898, that as far as is known there is not a single case of yellow fever in the United States. The total number of cases in the recent invasion at McHenry, Miss., was twenty-four. The last patient was discharged July 8th. There are no other cases under treatment and no suspicious ones under observation.

**Blood Charts.**—The clinical examination of the blood has been found to be of so great diagnostic and therapeutic importance that it is rapidly becoming a part of the routine examination of patients. The preservation of such records has been simplified by Dr. J. C. DaCosta, Jr., of Philadelphia, who has devised a systematic chart for notes of blood examinations. These charts are published by the J. B. Lippincott Co.

**New Quarters for the New York Department of Charities.**—Commissioner of Charities Keller, the deputies and the clerical force of the Charities Department, as well as the outdoor poor department, have moved from their old quarters at Third Avenue and Eleventh Street, into the new building, which has just been completed, at the foot of East Twenty-sixth Street. The new building, which was commenced under Mayor Strong, cost \$60,000.

**Measles in the Tropics.**—Since the introduction of rubeola following the annexation of the Fiji Islands by the British in 1874, no epidemic is held in more dread by the natives of the Pacific islands. Owing to their ignorance

of the dangers of the practice they could not be prevented from seeking relief from the cutaneous irritation by bathing in the nearest stream or surf. A mortality of more than thirty per cent. was the result. Quarantine laws of their ports emphasize the exclusion of measles above almost any other contagious disease.

**Consolidation of the Buffalo Medical Schools.**—Official announcement is made of the fact that the Niagara University Medical College and the Buffalo University Medical School have consolidated and have become one institution. It is announced by the *Buffalo Medical Journal* that this union is made in the interests of harmony and in accordance with the spirit of the age, which insists that there are too many medical colleges. What the name of the consolidated institution shall be is not stated, but as the Niagara Medical College is said in a measure to have sunk its identity, the natural inference is that name will disappear.

**Another Sneak-thief Victimizing New York Doctors.**—A woman of slight build and medium height, dressed in mourning, calls to see the doctor who treated her husband and little girl two and one-half years ago. She is a glib talker and tells the servant that husband and girl are both dead. She states that the doctor wouldn't know her now for she was then quite stout; she lives out of town at present and is quite timid about coming to the city alone. She has a sore throat and coughs continually and asks the girl to kindly bring her a glass of ice-water. When she returns the would-be patient is gone. The doctor, when he returns, misses a sheet of postage-stamps from his desk drawers, an umbrella from the hat rack in the hall, etc., etc.

**The Use of Intoxicating Beverages Restricted by General Miles.**—Major-General Miles has issued a general order to the Army announcing that the history of other armies has demonstrated that in a hot climate, abstinence from the use of intoxicating drink is essential to continued health and efficiency; and enjoining the division commanders to restrict or entirely prohibit the sale of such beverages if the welfare of the troops or the interest of the service requires such action. For a general order emanating from the headquarters of the army upon this subject, a more positive statement would not have been out of place. No physiologic fact has been more thoroughly demonstrated than that the use of alcohol in climates representing the extremes of heat and cold, namely, in Arctic expeditions and in tropical campaigns, is not only not beneficial but positively harmful.

**Typhoid Fever at Camp Alger.**—Colonel A. C. Girard, chief surgeon of the Second Army corps, reports: "There have been only forty-one cases of typhoid fever since the camp was established on May 29th. Ten of these cases originated in the squadron of the New York cavalry. Four men arrived in camp with the disease, and six caught it while at farm-houses doing provost duty. Members of the Sixth Massachusetts now at the front contracted typhoid fever from well water at Falls Church depot while

doing provost duty. Other cases are isolated, and average about one to every regiment. The water in the wells of the camp grounds is absolutely pure, and has been tested by an analytical chemist from the Surgeon-General's Office in Washington. There are no cases of typhoid in camp now, as shown by the regimental surgeons' reports. As soon as a case is discovered the sufferer is sent to Fort Myer, and every precaution is taken to prevent the disease from spreading."

*Antistreptococcal Serum.*—The New York Board of Health has decided to put on public sale its antistreptococcal serum for the treatment of diseases caused by streptococcal infection. The success attained by the use of this product, not only in the laboratories of the Board of Health, but also in private practice, justifies this general recognition and distribution to the profession. The excellence of this serum is due largely to its freshness. No preservative fluid has yet been found which does not destroy the efficacy of antistreptococcal serum. The same is also true of tetanus serum. To make them of any value, therefore, a fresh supply of these preparations must be kept constantly on hand. The Board of Health is prepared to do this. The serum is put up in vials of two sizes, one of ten cubic centimeters and the other of twenty. They will be sold for one and two dollars each. The Board of Health also announces that it is prepared to make bacteriologic examinations, free of charge, of any suitable material sent from patients who have been or are to be treated with the serum.

*American Medical Association and the "Spooner Bill."*—Dr. U. O. B. Wingate desires to have a statement made regarding his understanding of the action of the American Medical Association upon the Spooner Bill, at its recent meeting in Denver. He presented resolutions approving of the Spooner Bill. "On motion the report was accepted. Another motion was made and duly seconded, to amend the last resolution by referring the same to the Board of Trustees, as it was necessary for all matters pertaining to appropriations to be referred to that Board. This motion to amend was carried. A motion was then made to adopt the report and resolutions as amended, and was carried. Thus, the Association adopted the report and resolutions with the exception of the last resolution, which was referred, for constitutional reasons, to the Board of Trustees." This explanation is evidently one which does not explain. The ruling of the presiding officer was certainly peculiar. A motion to adopt a report and resolutions burdened with an amendment referring to a Board of Trustees, which was carried, can hardly be construed, constitutionally, as giving the sanction of the Association to the original motion.

*The Plague in Africa.*—Professor Koch announced in Berlin on Thursday of last week the results of his investigations into the plague, which may arouse some apprehension. He declared that the view entertained ten years ago that the plague no longer threatens mankind must be abandoned. There are now no less than four plague centers, the last of which Professor Koch discovered in

the Hinterland of German West Africa. Former outbreaks have been traced to Mesopotamia, where it has never entirely disappeared. But in China the plague is endemic, and its center is the province of Hunan. In Tibet is a second center. The latest outbreaks in China and India have had their origin there. The third center is on the west coast of Arabia, in the vicinity of Mecca. This center is of special importance in view of the pilgrims, but it is doubtful whether the plague is endemic in the neighborhood of Mecca. Nothing was known of any other plague centers until Professor Koch discovered a fourth in equatorial Africa. It was found that a devastating disease prevailed in Kissibia. Suspecting that it was the plague, Professor Koch proceeded from India to West Africa, and was able to identify the disease as bubonic plague.—*New York Sun.*

*The British Medical Association.*—The sixty-sixth annual meeting of the British Medical Association will be held at Edinburgh on Tuesday, Wednesday, Thursday, and Friday, July 26, 27, 28, and 29, 1898. The meeting will be presided over by Sir Thomas Granger Stewart, Professor of the Practice of Medicine and Clinical Medicine in the University of Edinburgh. The address in medicine will be delivered by Thomas Richard Fraser, Professor of Materia Medica in the University of Edinburgh, the address in surgery by Thomas Annandale, Surgeon to the Edinburgh Royal Infirmary, and the address in sociological medicine by Sir John Batty Tuke, Lecturer on Insanity in the Royal College, Edinburgh. Edinburgh has been long celebrated as one of the leading centers of medical education of the world. It is twenty-three years since the association last met in that city, and it is with no little interest that the members of the Association and its guests will note the substantial evidence afforded by new buildings, new organizations, and increased opportunities that Edinburgh is still keeping abreast of the times in all that goes to make up a great educational center. American talent will probably not be so much in evidence as at the Montreal meeting last year, but it is the intent of a goodly number of our representative men to be in attendance.

## CORRESPONDENCE.

### OUR FOREIGN LETTER.

[From Our Special Correspondent.]

THE BERLIN DOCTOR'S CLUB—PROFESSOR KOCH ON MALARIA AND SOME CIRCUMSTANCES IN THE CASE—EYE DISEASES IN SPAIN—PERNICIOUS ANEMIA AND ATROPHY OF THE GLANDS OF THE INTESTINAL TRACT.

BERLIN, July 3, 1898.

THE Doctor's Club of Berlin celebrated the formal opening of its club quarters on June 18th. A number of invited guests were present on the occasion, and with nearly 400 members a very pleasant evening was passed. When the club project was first hinted at it found a great many objectors, and there were ominous headshakings as to the political, university, and personal interests that would inevitably keep such an institution from being a

success. But thanks to the executive ability of Professor Lassar, whose management of the Lepra Conference showed foreigners the magnificent faculty for organization that Germans had long known him to possess, the new club promises to be a lasting and influential institution. Professor König, who occupies the Chair of Surgery at the University, said publicly during the evening that there was every reason to think that the new club, if it absolutely adhered to its avowed purpose of bringing the doctors together for social purposes only, would be able to do a great deal to obviate the differences and unpleasantnesses which the intense competition of a large city had inevitably brought into the profession. The general impression seemed to be that the club will accomplish this much-to-be-desired object—the lessening of what the Germans call *unkollegialität*—unkolleaguality, a very expressive and specific term for our indefinite euphemism unprofessional conduct. Such a desideratum is more and more making itself felt all over the world, and the German attempt at cutting of the Gordian knot of the difficulty by social organization cannot but be watched with sympathetic interest.

It is interesting to note that within this last month the announcement has been made that the medical men of Paris also have begun the organization of a club. Their avowed purpose, besides the benefit of the profession at home, is the proper welcoming of foreigners, especially for the International Congress in 1900.

Professor Koch is to talk in the near future before the *Deutsche Gesellschaft für Oeffentliche Gesundheitspflege* (society for the care of public health) on tropical hygiene. The exact date has not yet been announced. Some of his views on malaria, the doubt thrown on the existence of the remittent form of malaria, the non-malarial character of the hematuria which occurs during the course of the disease, the absolute prophylaxis afforded by quinin, and the tendency of the disease to be self-limited, were a source of considerable surprise to medical men generally. Perhaps some considerations of the circumstances under which they were expressed may help to the comprehension of the significance that is to be attached to them from a scientific standpoint. With the present interest in Germany generally, and especially on the part of the Imperial Government itself, in the colonization of South Africa, it was scarcely to be expected that very discouraging views as to the present status of the great scourge of that country, malaria, should be expressed before the German Colonial Society. Not that the observations have not their value but the opinions founded on them were bound to be modified by the thought of the importance of certain conclusions if they were true.

German colonization has never been a decided success. An American writer goes so far as to say that it has always been an utter failure and always will continue to be so, owing to the inadaptability of Germans generally to changes of climate, but this is evidently an exaggeration.

Of the Emperor's present *Welt politik*, or political policy, meant to give Germany a place in the world's politics everywhere, colonization, especially in the East and in Africa, is a favorite scheme. That under such

circumstances even a great scientist should see things a little as he would like them to be and that the wish to lessen the evils of malaria should give rise to the thoughts, first that it is not as serious as most other observers have pictured it, and secondly, that the possibility of its complete eradication or at least modification by immunization is not distant, would be extremely natural. These considerations seem not without their value in the appreciation of Koch's recent views as to malaria, though of course his publication of them in a formally scientific communication must be awaited before serious criticism of them can be indulged in. Koch's closeness to the government once before, especially to its present head, who has some of the impetuosity of youth, not tempered by the judicial state of mind that comes from scientific learning, put him in a false position and led to the raising of hopes that were destined to sad disappointment. After that lesson there is all the more probability that this cannot have happened again and that Koch's views on malaria when given to the scientific world will be found to represent some really new ideas on an old, old subject.

A recent communication before the Berlin Ophthalmological Society of Professor Hirschberg, the well-known ophthalmologist, on blindness in Spain, seems of more than passing interest. It contains practically the substance of his paper before the International Congress of Hygiene at Madrid in April. A trip through Spain some years ago called his attention to the large number of blind beggars that he met in the cities. This led him to investigate the subject of blindness in the country. To his surprise the only official statistics he could find on the subject, those of the Government census of 1860, gave the number of blind to the 10,000 of population as only 11. As England, France, and Germany, have 8 or 9 blind to the 10,000 inhabitants this seemed in utter discord with what was to be seen. Further investigation showed that travelers ever since the beginning of the century had been remarking the number of blind to be met with. Recently the Spanish doctors themselves have been waking up to the condition of affairs, and so it has all come out. Like everything else done by Spanish government officials the statistics, because of official negligence, are absolutely of no worth, and are the result of most carelessly gathered information. Meantime eye diseases have been spreading alarmingly. Hirschberg says he has never seen such marked phthisis bulbi, or so many cases of it as he met incidentally in Spain. Even among well-dressed people it is quite common to see individuals who have lost one eye, and such people with both eyes lost are not a rarity. Even in the halls of the Congress itself they were to be seen. Hirschberg, whose paper at the Madrid Congress was in Spanish in order to call Spanish attention to the subject, sounded a note of alarm as to the neglect manifested in such serious eye diseases as purulent ophthalmia neonatorum and trachoma, and demanded for the protection of the people themselves and of other countries more general medical attention to eye diseases.

A recent graduation thesis at the University of Berlin on "The Changes in the Stomach and Intestines in Pernicious

Anemia," by Dr. Max Koch, contains a complete review of the literature of this interesting subject to date, besides the results of original work in Virchow's laboratory. Though all of the patient's examined had died of exhaustion from the pernicious anemia itself, *i.e.*, without intercurrent disease, the atrophy of the glands of the stomach and intestines were found at very varying stages of involution, in some far advanced, in others only just begun, so that the essential connection between the blood disease and the atrophic process is evidently an indirect one. This is only a confirmation, but from a new point of view, of the opinion now so general that makes the atrophy of gastrointestinal mucous membrane secondary to the anemic condition. Though faithfully looking for them Dr. Koch was not able to find the corpora amyloaceæ which have been found in these atrophic conditions in the intestinal mucous membranes, while they occur frequently in the gastric mucous membranes, an observation that if substantiated may furnish material for the explanation of the origin of these pathological mysteries, the amyloid bodies found in the central nervous system, and prostate in the old, and in the remains of hemorrhagic infarcts of the lungs in patients of all ages.

#### TRANSACTIONS OF FOREIGN SOCIETIES

*London.*

URACHAL CYSTS—INFLUENCE ON GOUT OF THE MINERAL CONSTITUENTS OF VARIOUS VEGETABLES—CANCER OF THE BODY OF THE UTERUS—REPORT OF THE COMMITTEE APPOINTED TO INQUIRE INTO THE CLINICAL VALUE OF DIPHTHERIA ANTITOXIN—FIBROMYOMA OF THE UTERUS UNDER TWENTY-FIVE YEARS OF AGE—ANTEFLEXION OF THE UTERUS AND DYSMENORRHEA.

AT the Royal Medical and Chirurgical Society, May 24th, DORAN read a paper on "Urachal and So-called Allantoid Cysts." It was long since shown that in most human subjects the urachal canal is patent to a certain extent, and cystic dilatations of this canal are by no means uncommon. If the posterior wall of such a cyst can be dissected free from the peritoneum, the cyst should be removed *in toto*. Frequently this is impossible, and in such cases the cyst should be freely incised and drained. In every instance, the relations of the cyst to the peritoneum and abdominal viscera, including the bladder, should be accurately determined. The bladder may be entirely separate from the cyst, or it may communicate with it through a small opening. Such an opening into the bladder should be closed by suture. Doran read notes of a case in which he had evacuated and drained a urachal cyst containing a pint or more of a brown glairy fluid. The patient recovered.

At the meeting of June 14th, LUUFF read a paper on the "Influence on Gout of the Mineral Constituents of Various Vegetables." He carried on a long series of experiments to determine, (*a*) the effects of the mineral constituents of various vegetables on the solubility of sodium urate at the temperature of the body, and therefore presumably on the uratic deposits; and (*b*) the influence, if any, exerted by these constituents in retarding the con-

version of the sodium quadriurate contained in the fluids of the body into biurate. Obviously the elucidation of these points will have a direct bearing on the treatment of gout. The vegetables employed were spinach, Brussels sprouts, potatoes, asparagus, Savoy cabbage, French beans, lettuce, beet, winter cabbage, celery, turnip tops, turnip, carrot, cauliflower, sea-kale, and green peas. It appears that 0.05 per cent. or more of the mineral constituents of nearly all of the vegetables exerts an influence on the solubility of sodium urate. Green peas were, however, absolutely inert. Curiously enough in these experiments, modern science was only confirming the practice of the ancients, who gave ashes of vegetable matter for the gout. Not all the vegetables given were, however, capable of delaying the conversion of the quadriurate into the biurate, but from the results of his experiments certain vegetables stand out as preeminently fitted to be eaten in gout. These are spinach, Brussels sprouts, French beans, Savoy and winter cabbage, turnip tops, turnips, and celery. Attempts to substitute for the vegetables themselves an artificial mixture of those substances which are found in their ashes by analysis, have so far proved unsuccessful. The artificial ash corresponding to the natural ash of spinach was found to have a *deterrent* effect upon the solubility of the sodium biurate. Whether a mixture of the natural ashes of different vegetables can be given in place of the vegetables themselves has not yet been ascertained, and LUUFF is still working upon that problem.

At the Harveian Society, May 12th, HANDFIELD-JONES read a paper on "Cancer of the Body of the Uterus." Cases were quoted to show the unreliability of a diagnosis of malignant or benign growths made from scrapings of the uterus. Clinical signs are of much more value in determining the necessity for operative measures. Especial stress is to be laid on a rapid increase in size of the organ, although cancer of the body of the uterus is much less malignant than that of the cervix, and the disease may run a very long course. It is by no means limited to nulliparous women, but is almost equally common in those who have borne children. In the discussion which followed the reading of this paper, several members expressed their conviction that the microscopic examination of uterine scrapings is of little value.

ROUTH emphasized the importance of metrorrhagia at the menopause, which he considered a very serious symptom. The best guide to a correct diagnosis, is the finger *in utero*. He advocated the removal of any uterus after the menopause, which after curetting, continued to bleed and to increase in size.

At the Clinical Society, May 27th, CHURCH read the "Report of the Committee Appointed to Inquire into the Clinical Value of Diphtheria Antitoxin." The report was based upon the analysis of 633 cases. Of the patients who presented symptoms of laryngeal affection, nearly one-half escaped the operation of tracheotomy, a much larger proportion than is usually the case with diphtheria treated in other ways. Tracheotomy was performed seventy-five times, but only in two cases after the elapse of twenty-four hours from the first injection. The mortality

after tracheotomy was 36 per cent., as opposed to a mortality of 71.6 per cent. of a series of cases collected from general hospitals before the introduction of treatment by antitoxin. In the first five years of life the decrease in mortality after tracheotomy is most marked.

The total mortality in the 633 cases was 19.5 per cent., as opposed to 29.6 per cent. in the non-antitoxin control series. Not only was the mortality in the antitoxin series much less than in the other series, but the duration of life in the fatal cases was greater, a fact which has an important bearing on the development of paralyses. The closest investigation of the cases failed to reveal any connection between the use of antitoxin and the paralytic symptoms, neither as to the amount injected, nor as to the period of the disease at which injections were commenced. Some form of rash followed in about one-third of the cases in which antitoxin was used. Most of these rashes were erythematous or urticarial in character, the former type predominating. These had no bearing on the outcome of the disease. Pains in the joints due apparently to the serum were observed in a few cases of the antitoxin series. The percentage of deaths with suppression of urine was the same in both series. The general result of the inquiry showed that in the patients treated with antitoxin not only was the mortality notably lessened, but the duration of life was also prolonged. The injection of antitoxin may produce rashes, joint pains, and fever; with these exceptions no prejudicial action has been observed to follow in the series of cases investigated, even after the use of a very large quantity of the serum.

At the Obstetrical Society, June 1st, SPENCER read a paper on "Cases of Fibromyoma of the Uterus Occurring in Women under Twenty-five Years of Age." A brief abstract was given of forty recorded cases, and of two operated upon by himself. His conclusion was that uterine fibromyoma is rare before the twenty-fifth year, and is very rare before the age of twenty has been reached. There is no record of its occurrence before puberty.

HORROCKS upheld the reader in his views as to the rarity of fibromyomata in early life. They are also much commoner in single women than in married women, and in women who have never been pregnant than in those who have. Moreover, the tumors begin to atrophy as a rule after the climacteric. These facts and the further fact that they do not occur before puberty prove that they are in some way associated with active menstrual life.

At the British Gynecological Society, June 9th, BANTOCK discussed the subject of "Dysmenorrhea in Anteflexion of the Uterus." He recognized three typical forms of anteflexion as follows: (1) That in which the body and cervix are both bent forward; (2) that in which the cervix is alone bent forward, the body remaining in fairly normal position; and (3) that in which the anteflexed uterus lies on its back in the bottom of Douglas' pouch. The bend *per se* is not the cause of the pain. It is only when the resultant congestion and thickening of the mucous membrane, which follows the obstruction to blood-flow has become well established that the pain is prominent. The character of the discharged blood

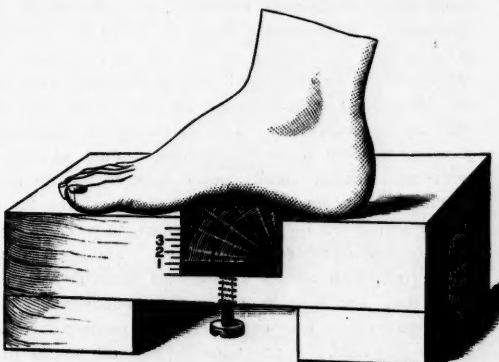
clearly shows that there is an obstruction to its flow, as does the enlargement of the cavity of the uterus. For this condition there are only three rational methods of treatment: (1) Division of the cervix; (2) the stem-pessary; (3) dilatation. No operation upon the external os can avail when the condition to be remedied has its seat at the internal os. No vaginal pessary is of service in the treatment of anteflexion. The best method of dilatation is that by graduated bougies. It generally requires to be repeated at intervals.

## NEW INSTRUMENT.

### TO DETERMINE THE THICKNESS OF THE PAD USED IN PES PLANUS.

BY DAVID TRUMBULL MARSHALL, M.D.,  
OF NEW YORK.

THE accompanying sketch shows an arrangement for determining the thickness of the pad used in the treatment of pes planus. The apparatus consists of a block of wood having in its center a recess or groove in which slides a block. The block fits accurately into the groove



and may be raised or lowered by means of a thumb-screw. The foot is placed upon the block, the patient resting his entire weight upon it. The movable block is raised by means of the thumb-screw until the arch of the foot is comfortably supported. The height of the block is read off on a scale at the side, and the pad then made without the tedious trying and building that is necessary in the ordinary method.

## SOCIETY PROCEEDINGS.

### NEW YORK NEUROLOGICAL SOCIETY.

*Stated Meeting, Held May 3, 1898.*

DR. FREDERICK PETERSON, the new president of the Society, delivered an address, entitled

#### NEW PATHS IN PSYCHIATRY.

He said that a recent writer had described psychiatry as the new Prometheus which would wrest from Nature the secret of thought. The anatomist, the cytologist, the chemist, the embryologist, the pathologist, and in-

numerous other specialists are now engaged in different lines of research connected with the workings of the human body. Of the numerous pathways extending out before us into dimly lighted regions, one of the most intricate is that of physiologic and pathologic chemistry. The roads of normal and pathologic histology and cytology are more traveled. At least one of these roadways leading into the realm of the mind, and which any one in the Society might follow with profit, is that opened up by careful clinical study of organic diseases of the brain, in accordance with modern methods from the standpoint of psychology. He believed it to be of the greatest importance to study the quality, intensity, and tone of sensations, the contents, distinctness and energy of ideas, the evolution, durability, and associations of ideas, disorders of the affected life, such as depression, exaltation, apathy, and irritability, and the disorders of the idea-associations as regards memory, attention, rate of flow, coherence, ethical feeling, etc. Our studies of aphasia in the past had been remarkably deficient as regards the psychic side. Doubtless the new psychological theories would, in turn, give place to better ones, but there is a certain charm in sifting the psychical processes down to stimulus, sensation, idea-association, and movement. It becomes a delight to study the disorders of sensation, disturbance of the memory pictures, derangement of the idea and judgment-associations, and the influence of these disorders on the actions and conduct of the individual. The psychological laboratories attached to some of our universities, dealing as they do with the normal mind, cannot hope to accomplish as much as similar foundations attached to asylums for the insane and clinics for nervous diseases, in which a large mass of morbid material is collected. The great city of New York, with all its wealth and benevolence, might well lead the New World in the establishment of a psychiatric clinic, fully equipped for all modern investigation in this field. A psychopathic hospital would prove a boon in many ways, not the least of which would be the benefit to the insane now gathered into a single pavilion attached to one of the hospitals merely for distribution to various asylums, to the students of medicine, and to those interested in solving some of the riddles of the mind.

#### SUTURE OF THE MEDIAN NERVE.

DR. B. FARQUHAR CURTIS presented a young woman who, last September, received a small punctured wound of the right wrist. Following it there was anesthesia of the forefinger, and, to a less extent, of the thumb and middle finger, but without any marked paralysis. The area of anesthesia was not quite typical of that observed after complete division of the median nerve, because the ulnar side of the middle finger was not involved. The operation had been performed a week before, and on exposing the nerve it had been found that it had been completely divided in spite of the atypical area of anesthesia. On cutting off the bulbous ends an interval of about one inch was left between the ends of the nerve. Both ends were forcibly stretched and apposed, and the hand kept in a flexed position by a suitable splint. Two or three cat-

gut sutures were passed, not merely through the sheath, but through the nerve itself. Instead of cutting away the bulbous ends entirely, the fibrous part of the sheath was preserved and used as a sort of flap for the reinforcement of the suture. The anesthesia had been so complete before the operation that she had repeatedly burned the ends of the fingers.

#### TRAUMATIC ULNAR NEURITIS—TRANSPLANTATION OF THE NERVE.

DR. CURTIS also presented a woman, twenty-eight years of age, who had been doing a good deal of writing with a pen. In childhood she had received a fracture of both condyles of the right elbow. As a result of this the ulnar nerve lay upon an exposed surface instead of in the groove. For two or three years there had been increasing numbness and pain. Dr. Dana had seen the case, and made a diagnosis of neuritis. Dr. Curtis exposed the nerve by a curved incision and flap. The nerve was found to be thickened for a distance of about an inch and a half, and to about twice its normal diameter. On incision through the sheath, there seemed to be a general increase of the fibrous tissue of the nerve. The nerve was split and stretched gently, and then removed from its exposed situation to a more protected part, *i. e.*, to the front of the elbow. The result had been surprisingly satisfactory, so that she had been enabled to resume her long hours of writing without discomfort. The speaker said that there had been some cases reported of dislocation of the ulnar nerve in which the nerve had been restored to its proper groove by operation. There had been no material change in the general appearance of the hand, except, perhaps, that it was a little more plump.

DR. SACHS said, regarding the maintenance of sensation in the ulnar half of the hand in the first case, that the areas of sensation pertaining to the two nerves are so irregular that one cannot predict with any certainty as to the result in any given case. The result in both patients presented was certainly very good.

#### TREPHINING FOR EPILEPSY.

DR. CURTIS then exhibited a recent case of trephining in epilepsy, with a view to illustrating the technic of the general operation of craniotomy with a bone flap. The patient, an Italian, twenty-five years of age, had had epilepsy quite severely, but the details of the previous history were not in his possession at present. There were no localizing symptoms, but there was a scar on the right side of the head, and at Dr. Hammond's suggestion an exploratory operation was performed last March. As there was no definite localization, a large opening was required. This was made by the osteoplastic method, using the wire saw. Four small trephine openings were rapidly made, and then a flat director of German silver was passed between the skull and the dura from one opening to the other. Through this an eyed probe armed with a string could be passed. The string served to carry the wire saw. The latter is nothing but a piece of piano-wire, having a screw-thread cut upon it. It is operated like a chain-saw, and cuts very rapidly. The advantage over the electric saw is that it eliminates

the uncertainties connected with the use of a battery. The disadvantage of having to put a guard underneath is one which is shared by all the other methods of this nature. As the saws are very cheap, a new one can be used for each patient. The saw was used on the three sides, and the remainder of the flap broken away. Fully one-third of the brain was exposed in this way. It seemed to him much easier to make these large openings and work through them than through the smaller trephine apertures. The cut with the saw is made obliquely, so that immediately afterward the bone can be replaced and will rest firmly in place. In this case, some atrophy of the cortex and of the underlying parts was found.

Dr. CURTIS then reported the cases of two other patients who had been operated upon previously, and who had failed to present themselves at this meeting for inspection. The first case was that of a married woman, thirty years of age, who, as a result of a fall, had severely injured her right arm. She did not have any epileptic fits, however, until six years before coming under Dr. DANA's observation. Shortly before that time they had become very frequent and severe. In other respects she appeared to be healthy. The attacks always began in the left foot and spread up the leg; then they attacked the arm and spread to the body. She frequently had a complete, general, and typical epileptic attack, with loss of consciousness. There was no paralysis and no optic neuritis. She would have as many as a dozen attacks in one night. The speaker said that at the operation he had made an opening, two inches in diameter, over the fissure of Rolando. On testing the centers with a strong current of electricity, an intense general convulsion had been provoked. This began in the left leg, and the pulse becoming very feeble, the wound was closed temporarily. It was worthy of note that the fits continued notwithstanding the relief of pressure afforded by the removal of the bone. A week after this operation the wound was reopened, and a flap of dura was turned back. The vessels surrounding the motor-centers were ligated, and then the cortex on both sides of the fissure of Rolando and the region of the arm and leg centers were excised. Some adhesions to the pia mater were encountered and separated. There was some rise of temperature, but no other sign of inflammation after the operation. The patient was completely paralyzed in the left arm and leg, and had a few fits during the first week, and her whole demeanor underwent a marked change. After a time the mental depression passed off, and when she left the hospital she was in good spirits. She took the bromids during her stay in the hospital, but discontinued them afterward. Motion in the arm and leg began six weeks after operation, and in six months she had complete power in both extremities. Eighteen months after operation he had examined her. She had gained twenty or thirty pounds in weight, and had entirely recovered the use of the hand and leg. She no longer had fits, and was in the best of health, her former cheerfulness and mental activity having been restored. Slight headache and indisposition to meet people at certain times were the only

remnants of the old trouble. There was a considerable depression of the scalp over the aperture.

The second case was one of hemorrhagic cyst of the brain, with epilepsy, in which recovery followed the operation of trephining. The patient was a Russian boy, thirteen years of age, who was admitted to the Post-Graduate Hospital on June 11, 1896. Fourteen months previously he had had a cerebral hemorrhage, with left hemiplegia, and for about a year he had suffered from epileptic fits. There was no special localization, but he was guided to the situation by the limited paralysis on the opposite side of the body. In this case, the operation was about the same as in the other. The aperture made was about two inches in diameter over the motor region. The dura was opened, and when the circulation became feeble the brain appeared unusually blanched and soft. Further exploration revealed a cystic cavity immediately underneath the cortex. Here the cortical substance of the brain was very much thickened by fibrous tissue. The cavity extended backward into the posterior lobe and forward for three or four inches. The cyst contained clear serum, but there was no tension in the cyst. The cyst was closed by catgut sutures, as the brain tissue was quite fibrous, and permitted such a method to be used. The operation was done on July 4th. On October 25th there were seven convulsions during twenty-four hours. On the following day a large aspirating-needle was plunged into the cyst, and five or six grams removed. He remained free from convulsions until February 18, 1897, when it became necessary to repeat the aspiration. Up to last January he had remained free from convulsions under the use of the bromids.

DR. W. M. LESZVNSKY said that he had seen this boy about one week ago. Although before operation the bromids had had absolutely no effect, since the last aspiration of the cyst the boy had been comparatively well. He had been taking 30 grains of bromid three times a day, and now had only an occasional slight attack, limited to the paralyzed side—about one in three weeks—and his mental condition had improved. He had reported the case to the American Neurological Society last year. Even in such apparently hopeless cases some benefit seemed to follow surgical interference. He had suggested an exploratory operation in view of the limited character of the paralysis.

DR. C. L. DANA said he desired to emphasize the remarkable success achieved in the case which had been under his observation, and which was one of true, classical Jacksonian epilepsy, without any discoverable gross lesion of the brain. Dr. Collins and he had made a microscopic examination of the excised part, and had found marked degenerative changes in the cells. Dr. Collins had published in *Brain* the results of this study. Dr. DANA said he had no doubt that the case, if left alone, would have developed into one of ordinary epilepsy.

DR. SACHS said that one great obstacle to the successful performance of these operations has always been the difficulty of obtaining a suitable saw. The instrument just exhibited seemed to be a great improvement on former instruments. Most of the neurologists and sur-

geons seemed now agreed upon the advisability of using a large flap. He thought a careful record should be made of every case of this kind in which a good result has been obtained, because the whole subject of the surgical treatment of epilepsy had lately received another serious blow from Bergmann. Certainly, a sufficient number of patients have been relieved by operation to warrant a selection of such cases as seem suitable for operation, particularly those in which the interval between the development of the epilepsy and the operation is not very long. The fact that in the case just reported the interval had been six years made the good result all the more remarkable.

DR. J. ARTHUR BOOTH said that it was common for patients to go without attacks for two or three years under the bromid treatment, and without surgical interference; hence, these persons should not be considered cured until at least four or five years have elapsed.

DR. PETERSON also thought it extremely important that careful records of these cases should be kept for a long time after operation. At least four years should elapse without an attack before a patient should be considered cured.

DR. CURTIS said he had not intended to bring up the general subject of the surgical treatment of epilepsy at this time. He thought the surgeon should be willing to operate upon a good many of these patients, but two classes should be carefully distinguished, *viz.*: (1) Cases like the ones just reported, in which there is a localization of the epilepsy, and (2) cases like that of the Italian just presented, whose future is hopeless and whose history is very vague. For the sake of the few who might be benefited, it seemed to him justifiable to operate. The operation certainly causes a temporary amelioration of the symptoms, and this repays the patient for the slight risk incurred by submitting to the operation. In cases requiring an extensive and dangerous operation the probable benefit is correspondingly great. He was not enthusiastic about this kind of work, and did not speak of the patients as "cured," but it was certainly worth while to place the cases on record. At present, an exploratory operation seemed to him justifiable and desirable.

## REVIEWS.

YEAR-BOOK OF TREATMENT FOR 1898. A Critical Review for Practitioners of Medicine and Surgery, Philadelphia and New York: Lea Bros. & Co., 1898.

THE fourteenth annual volume of the "Year-Book of Treatment" lies before us. Like its predecessors, it contains the correlated knowledge on the treatment of diseases in the various specialties of medicine in complete and compact form.

Year-Books have taken a permanent place in medical literature, and this one has always occupied a unique position for its completeness, the choice of its selections, and its excellent literary form. A few changes have been made in the list of authors in the present volume. The work is to be most cordially recommended for general use.

AIDS TO ASEPTIC TECHNIQUE. By A. D. WHITING, M.D., Assistant Surgeon to the German Hospital, Philadelphia. Philadelphia: J. B. Lippincott Co., 1898.

THIS little work is intended to be of assistance to nurses and surgical assistants who are obliged to prepare aseptic materials for surgical operations. In the scope of its work the author has undertaken to establish the reasons for the procedures which he describes, and in most instances has done this admirably. His descriptions of the technic of the various methods employed in this work are modern and thorough. The work is a good one for those for whom it is intended, but almost too superficial for the surgeon. The few illustrations are well executed and the book is well made.

## THERAPEUTIC HINTS.

### For Dandruff.—

B	Green soap . . . . .	ʒ iii
Melt at low temperature and add:		
Rectified alcohol . . . . .	ʒ iiss	
Glycerin . . . . .	ʒ iiiss	
Filter and dissolve in the filtrate:		
B-naphthol . . . . .	gr. xl.	
M. Sig. To be used with water as a soap for the scalp.		

### For Obstinate Vomiting.—

B	Tinct. iodi . . . . .	gtt. x
Aq. dest.	. . . . .	ʒ iv.
M. Sig. One tablespoonful in half a glass of sweetened water between meals.—Steffen.		

Administration of Chaulmoogra Oil in Leprosy.—The following formula is recommended as enabling the drug to be taken and retained without difficulty:

B	Ol. chaulmoogra . . . . .	m. xxx—m. lxxx
Ol. amygdal. dulc.	. . . . .	3 ii—3 iiss
Acacia	. . . . .	3 iv
Syr. aurant. cort.	. . . . .	ʒ i.
Aq. laurocerasi	. . . . .	m. lxxx
Lactis	q.s.ad.	ʒ iv.

M. Sig. To be taken in divided doses (four or five) during one day. A little whisky may be added if desired.—Danlos.

Lactophenin in Typhoid Fever.—It is the experience of Diaz de Palma that this drug will abate the fever and restlessness in typhoid fever without inducing the perspiration and exhaustion which may follow the use of antipyrin or phenacetin. He gives from forty-five to seventy-five grains in twenty-four hours and has never found it to cause gastro-intestinal irritation or other undesirable symptoms.

### For Acute Gastro-enteritis in Infants.—

B	Bismuthi subnitrat. . . . .	gr. xi
Tinct. opii camphorat.	{ aa . . . . .	m. xlvi
Tinct. chamomilæ		
Glycerini . . . . .		ʒ iiss
Ag. cinnamomi . . . . .		ʒ ii.
M. Sig. One teaspoonful every three hours.		